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A MONTHLY JOURNAL

OF THEORETICAL, ANALYTICAL, AND TECHNICAL CHEMISTRY.

EDITED BY

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Professor of Chemistry in the New York College of Pharmacy, in the  
School of Mines, Columbia College, N. Y., etc.,

AND

WILLIAM H. CHANDLER,

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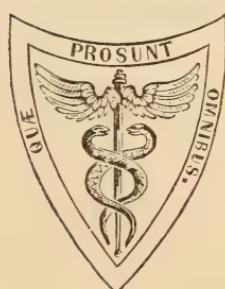
EDITED BY  
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FELLOW OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA; MEMBER OF  
THE ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA, AND OF THE AMERICAN  
PHILOSOPHICAL SOCIETY; ASSOCIATE FELLOW OF THE AMERICAN  
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Obstetric Aphorisms. For the Use of Students commencing Midwifery Practice. By JOSEPH GRIFFITHS SWAYNE, M.D., Phys. Accoucheur to the Bristol Gen. Hospital and Lecturer on Obstet. Med. at the Bristol Med. School. Second American from the Fifth revised English edition, with additions by EDWARD R. HUTCHINS, M.D. Philadelphia: Henry C. Lea, 1873.

The Pathology, Diagnosis, and Treatment of Diseases of Women, including the Diagnosis of Pregnancy. By GRAILY HEWITT, M.D., Lond., F.R.C.P., Prof. of Midwifery and Diseases of Women, Univ. Coll. etc. Second Am. from Third Lond. ed., revised and enlarged. With 132 illustrations. Philadelphia: Lindsay & Blakiston, 1872.

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Practical Lessons in the Nature and Treatment of the Affections produced by the Contagious Diseases. With an Appendix on the recent Report of the Royal Commission on the Contagious Diseases Act, and its Application to the Voluntary Hospital System. By JOHN MORGAN, A.M., M.D., Univ. of Dublin. Philadelphia: J. B. Lippincott & Co., 1872.

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On the Physiology of Syphilitic Infection, as applied to the successive manifestations of the Disease. By F. N. OTIS, M.D. Part Second. New York: D. Appleton & Co., 1872.

Circular of Information of the Bureau of Education for March, 1872. Washington, 1872.

Chronic Urethral Discharges. By C. H. MASTIN, M.D., of Mobile, Ala. Louisville, 1872.

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On a New Method for Extraction of Cataract. By R. LIEBREICH, Ophthalmic Surgeon to, and Lecturer on Ophthalmology at, St. Thomas's Hospital. Philadelphia: Claxton, Remsen & Haffelfinger, 1873.

What Physiological Value has Phosphorus as an Organismal Element? An Essay

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Modern Medicine. A Lecture introductory to the Course at the Jefferson Medical College. By J. M. DA COSTA, M.D., Prof. of the Principles and Practice of Medicine, Philadelphia: J. B. Lippincott & Co., 1872.

Puncture of the Bladder by Dieulafoy's Aspirator. With a Description of the Instrument. By JAMES L. LITTLE, M.D., Surgeon to St. Luke's Hospital, etc. New York: D. Appleton & Co., 1872.

A Discourse Commemorative of the Life and Character of Samuel Jackson, M.D., late Prof. of the Institutes of Medicine in the University of Pennsylvania. By JOS. CARSON, M.D., Prof. of Mat. Med. and Pharmacy. Philadelphia, 1872.

Transactions of the Indiana State Medical Society, 1872. Indianapolis.

Transactions of the Minnesota State Medical Society, 1872. Minneapolis, 1872.

Transactions of the Georgia Medical Association, 1872. Atlanta, 1872.

The Transactions of American Medical Association. Vol. XXIII. Philada., 1872.

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ART. I.—*A Case in which a Large Bronchocele was removed, with Fatal Result.* By T. HOLMES, Surgeon to St. George's Hospital, and Professor of Surgery and Pathology to the Royal College of Surgeons, London.

I HAVE read with extreme interest the article on the removal of bronchocele, published in the *American Journal of the Medical Sciences* for January, 1871, by Dr. Greene, of Portland, Maine. It happens that I had been led to a conclusion similar to that of Dr. Greene as to the occasional justifiableness of such operations, and had had occasion to perform the operation before meeting with his excellent paper. My case, although its issue was fatal, was one which to my mind showed that such operations are not impracticable, and that recovery may be reasonably anticipated in a certain proportion of them. I think, therefore, that a short account of it may not prove unacceptable to the readers of the *American Journal*. If what I contribute to its pages has any value, I shall regard it as a very insignificant instalment of the large debt I owe for instruction received from that valuable periodical.

My case was as follows: An elderly married woman, æt. 65, was brought under my notice by my friend, Mr. Lynch, of Sudbury, Suffolk, at St. Leonard's Hospital, in that town. She had been the subject of enlargement of the thyroid body for more than forty years, and had consulted various medical men, who had told her (and very wisely) that an attempt at its removal would in all probability end fatally. The tumour, however, had continued slowly to increase; and some time before I saw her it had

burst,<sup>1</sup> giving rise to an enormous discharge of fluid (estimated by her friends at half a pailful) followed of course by suppuration of the great cyst from which it was discharged. Under this suppuration and under the fetor which it occasioned, her powers were gradually sinking, and death sooner or later was inevitable.



The annexed wood-cut represents as accurately as can be done without colour the patient's condition, being taken from a photograph which Mr. Lynch was so kind as to have taken. The only point it does not show is the extreme state of anaemia and emaciation in which the patient was. The tumour was of very large size, hanging down considerably below her waist. The tension of the parts so produced rendered it impossible to make out its inferior relations. It lay more to the right than the left side, but extended over as far as the left sterno-mastoid muscle. On the right side the innominate artery could be felt extending as high as the lower

edge of the tumour, and giving off its two branches, the subclavian lying over the pedicle for some distance. The tumour was of very large size at

<sup>1</sup> I owe the following to the Rev. Mr. Smith, a clergyman and a student of medicine, who also assisted at the operation.

*Susannah Peggs*, age 65; married about forty-one years; had six children. Enlargement of the thyroid first perceived before the birth of the fifth child; when first noticed it was about the size of a walnut. The bronchocele continued, and about thirty years ago she was admitted into the Colchester Hospital, when the tumour was punctured, with no result but the loss of some blood and a little serum. She left the hospital against the wish of the surgeons, who wished to try further means. The growth reached a very large size (good-sized pumpkin) about eighteen years ago, and it had continued inert and chronic until the end of last year or beginning of this, when it assumed a more oedematous character and showed a fixed tendency to increase in bulk; it became more tense and painful almost daily, and by the first week in May was of immense girth. On the 5th of May (her sixty-fifth birthday) it broke and discharged an immense volume of a streaky and glairy fluid, tinged here and there with blood; it is computed that vessels equivalent to two pailfuls were filled in the evening and through the night of the fifth.

its base, quite as large in circumference as a man's arm. It was of course perfectly movable, but its immense size prevented our manipulating it freely enough to ascertain whether it could be at all separated from the trachea. However, there was not, nor ever had been, as far as we could learn, any dyspnœa or dysphagia; and this fact encouraged the hope that it had no very firm connection to the deep parts. Besides the great cyst which had burst, other smaller rounded masses, probably secondary cysts, could be felt; and in many places calcareous nodules existed. The veins covering the tumour were of very large size, but beyond the great vessels of the neck (which seemed unusually large) no arterial pulsation could be detected.

I was told that Sir Duncan Gibb had seen the patient and expressed an opinion that the removal of the tumour was practicable. With some hesitation I came to the same conclusion. At any rate I thought that the tumour might be removed, if not absolutely entire, yet sufficiently to prevent death from the suppuration of so large a cavity, which otherwise seemed inevitable. I offered, accordingly, to undertake the operation if the patient and her friends, after having the dangers of it fully explained to them, wished it to be done. Accordingly on June 19th I proceeded to the operation. My colleague, Mr. Pick, of St. George's Hospital, was so kind as to accompany me from London, and Mr. Lynch and Mr. Symmons, of Colchester, also assisted me, as well as the Rev. Mr. Smith.

I did not adopt the plan of operation proposed by Dr. Greene, of endeavouring to enucleate the tumour without regard to the hemorrhage so produced. In fact the enormous size of the mass rendered such a plan too dangerous, especially in her enfeebled state. The tumour was surrounded by appropriate incisions around its lower part; flaps were carefully dissected off it, sufficient to cover the vast surface which would be exposed; all large vessels that could be seen were divided between two ligatures, and any that spirted were tied at once, and in this way we got down to the base of the tumour. Having dissected the soft parts away from the base of the large cyst to a sufficient extent, I encircled the pedicle with the chain of an écraseur so as to check the hemorrhage, while with an amputating-knife I cut away the mass. This left behind a portion of the cyst. After the divided vessels had been secured, the écraseur was removed, and the remains of the cyst partly dissected off, and partly surrounded with ligatures. The operation lasted about an hour; the patient remained quiet under the influence of chloroform the whole time, and did not suffer at all from dyspnœa, except when an attempt was made to pass the chain of the écraseur fairly below the tumour, instead of around its lower end. This attempt completely closed the trachea and stopped the breathing entirely. It was this intimate connection between the deep part of the cyst and the windpipe which obliged us to leave a part of the cyst wall behind; but I carried double ligatures round every accessible part of it—partly to com-

mand the hemorrhage, and partly to insure the separation of all the secreting surface. The patient lost very little blood, and her pulse was as good after the operation as before. She passed a comfortable night after the operation, and was able without difficulty to swallow milk and other liquids. Early next morning hemorrhage set in from the upper part of the wound, and before it could be stopped a considerable quantity of blood was lost; in the afternoon erysipelatous redness began to appear over the throat, the pulse became rapidly weaker, unconsciousness supervened, and she died on the following morning, having survived the operation about thirty-nine hours. No post-mortem examination was made.

The tumour, when removed, weighed a little over seven pounds. It consisted almost entirely of the single large cyst, the walls of which were of considerable thickness, containing here and there nodules of calcareous matter, and a few small secondary cysts.

The result of this operation was so far unsatisfactory that it unquestionably hastened the patient's death. The same thing, however, may be said about the great majority of surgical operations which end fatally—and of these many are undertaken with a full knowledge on the part of the surgeon that the chance of recovery is very small. This is not considered to be a valid argument against the operation in other cases, nor can I see why it should be so considered in the case of a bronchocele—provided that the danger to the patient's life from the disease is sufficient to justify the admitted risks of the operation, and provided that no less dangerous method of treating the disease efficiently can be suggested. In the case before us there was no doubt in the mind of any of those who saw the patient, that she was slowly, but surely, succumbing to the effects of the wasting suppuration; while her life was rendered a burden to her while it lasted, by the fetor of the tumour, and the other inconveniences it produced. And, as no other course of treatment could be rationally proposed (for the enormous size of the mass put it far beyond the province of setons or injections), the question was limited to the feasibility of the operation. On this head I had little previous experience to guide me. Cases are related, indeed, by Mr. Holmes Coote<sup>1</sup> and by Mr. South,<sup>2</sup> in which such operations have been performed by Hedenus, Green (of St. Thomas's Hospital) and others; but both these authors dismiss the subject—Mr. Coote with the remark that "these proceedings are scarcely considered admissible in modern surgery," while Mr. South contents himself with translating Chelius's opinion that "the extirpation of the bronchocele is to be decidedly rejected as dangerous, and almost entirely to be forbidden." Dr. Greene's paper had not fallen under my notice.

There can be no doubt, I think, that the opinions above quoted are

<sup>1</sup> System of Surgery, edited by Holmes, 2d ed., vol. v. p. 287.

<sup>2</sup> South's Chelius, vol. ii. p. 664.

correct, as far as they go, that the great majority of cases of bronchocele are not proper subjects for extirpation, and that the advice which my patient received, before the tumour had burst, was sound. But the case was altered when suppuration had been established in the whole of this great cavity. And now, the experience, such as it was known to me, of similar operations, as well as the examination of the tumour before me, seemed to show that there was no insuperable anatomical difficulty involved in the extirpation even of so large a thyroid tumour as the one before us. It was evidently easy to avoid the main arteries of the neck, and, although the thyroid and other veins must be greatly enlarged, there could be no difficulty in securing them with so large a wound as must be made. It was impossible, it is true, to know beforehand what the connection between the tumour and trachea might be; but I reasoned, that, if we succeeded in extirpating or destroying the whole of the suppurating cyst-membrane, the rest of the thyroid body might be safely left behind. I did not, therefore, anticipate any insuperable anatomical difficulties; and, however formidable the operation might be, in consequence of the great size of the wound, and the extent to which the dissection must be pursued in the deep parts of the neck, still it seemed her only chance, and was to my mind as justifiable as an amputation at the hip-joint would have been in the same patient—and probably not more dangerous. As, therefore, for a similar motive, no surgeon would have hesitated to perform the one operation, I could not see why the other should be contra-indicated. Nor should I hesitate to repeat it under circumstances at all similar to those of this case.

I could hardly express my own opinion on the subject in more appropriate or forcible words than those used by Dr. Greene, in speaking of the most formidable of the cases on which he operated. “We had to decide whether an attempt at removal gave her a possible chance for life; for my own rule of action is, when a certainty of death stands opposed to a possible chance of safety by operative procedure, to give the patient the chance, no matter how small it is, provided he or she makes the choice, with a full understanding of all the facts, and with no prompting by the surgeon.”

I have thought the case worth recording, also, as adding one more to the conditions which may make it justifiable to attempt the extirpation of a bronchocele. The operation is indicated usually by the effects of the pressure of the tumour on the trachea, oesophagus, or great vessels. This is the first case which I have met with, either in practice or literature, where the suppuration caused by the bursting of the tumour was the motive for interference.

LONDON, October, 1872.

ART. II.—*Venereal Stricture of the Rectum.* By ERSKINE MASON, M.D., Adjunct Professor of Surgery in the University of New York; Visiting Surgeon to the Charity and the Roosevelt Hospitals, New York.

WHEN beginning my visits, some six years ago, as surgeon to Charity Hospital, my attention was arrested by the number of cases of stricture of the rectum in the wards. These cases all occurred in the female wards and among those who were regarded as syphilitic patients. I then viewed these strictures as one of the manifestations of constitutional infection, and, in addition to local treatment by the introduction of bougies, had them placed under anti-syphilitic remedies, indeed some of them had been already under this treatment for some time. Upon consulting several surgical authors, I found that this was both the opinion entertained by them and the course of treatment recommended.

Since that time, however, some forty cases have passed under my observation both in private and hospital practice, and my views, both regarding the nature as well as the treatment of this affection, have materially changed.

Most of these cases have been seen in hospital practice, and notes of many of them have been preserved. Soon after beginning to study these cases, I endeavoured to find similar ones in the male wards, and, failing in this attempt, was at a loss to explain why the men were so peculiarly exempt from what I then regarded as a manifestation of constitutional syphilis. From that day to this I have looked in vain, at Charity Hospital, for a single case of stricture of the rectum in a male patient, which was evidently due to venereal origin.

It was not until some months or so after beginning to investigate this disease, that my attention was directed to a paper on this subject, by M. Gosselin, in the *Archives Générales de Médecine* for December, 1854, and I then began to study my cases in order to satisfy myself as to the correctness of the views he then announced. I entered upon this investigation with strong prejudices against their being due entirely to the effects of chancroids, and a bias received both from the writings of surgical authors, as well as from the views expressed by some of my medical friends. Indeed, many of the later works on surgery, though referring to the paper of M. Gosselin, still persist in treating this subject as *syphilitic stricture*, and some yet incline to the view that it is a result of a constitutional contamination. Indeed, it is only a short time since that this view was expressed in a clinical lecture delivered by a prominent medical professor, and he is only one of many who still regard this as a result of constitutional syphilis. Now, after a somewhat extensive experience

with this disease, I feel fully prepared to accept *in toto* the views first enunciated in the paper of M. Gosselin, to which we have referred, and the object of this paper is but to add our quota to the proof (which, to our mind, is beyond dispute) that these *so-called syphilitic strictures* are in *no wise* due to syphilis, but arise from the local and non-infecting chancreoid.

It appears but right that we should here look, if but briefly, at what has been said upon this subject by the various authors who have written monographs upon diseases of the rectum, as well as to general surgical treatises.

White, of Bath, the first English surgeon, we believe, who wrote a work on stricture of the rectum (*Observations on Strictures of the Rectum*, Bath, 1820), makes no mention of the venereal poison as a cause of stricture. This is also the case with Mayo (*Diseases of Rectum*, London, 1833) and Frederick Talman (*Stricture of Rectum*, London, 1833), and even Mr. Syme, in a paper on diseases of the rectum, does not allude to it (*Dunglison's Am. Med. Library*, Philadelphia, 1839). Indeed, it would appear that the earlier English writers have passed over any venereal disease as a cause of stricture in silence. As far as we have been able to discover, the French were the first to have spoken on this subject. Thus, as early as 1815, Richerand speaks of *condyloms internes* of the rectum (*Nasographe Chirurgical*, tome 3, p. 438, Paris, 1815). Others have spoken of tubercles in this organ causing stricture, but Bushe, in his work on *Diseases and Malformations of the Rectum* (New York, 1837, p. 268), says that "neither Morgagni, Desault, Tanson, White, Copeland, nor Calvert say that these tubercles depend upon any specific cause." Both Richerand and Delpech, however, assert most distinctly that they depend upon the venereal poison. Bushe, in a short chapter on venereal ulceration of the rectum, says, "This ulceration may arise from the direct application of venereal poison, or it may be consecutive to disease in the genital organs, and they co-exist with other secondary symptoms. . . . Should these ulcers be superficial, their edges regular and soft, and their secretion healthy, they will heal rapidly; but, on the other hand, should they be deep and painful, surmounted by hard, irregular edges, and secrete a thin fetid matter, they will not heal easily, and may become phagedenic." He does not, however, speak of this disease as causing stricture.

South (Am. edition, p. 47), in his edition of Chelius's Surgery, among the numerous causes enumerated as giving rise to stricture includes that of syphilis, and says, "The immediate cause of stricture of the rectum is always a more or less extensive inflammation or continual irritation of the rectum, in consequence of which there is secretion of plastic matter, thickening and elongation of the tissue."

According to Copeland (*Diseases of Rectum*), Dessault saw stricture

so frequently in combination with other symptoms, decidedly venereal, that he did not hesitate at once to put his patients under a course of mercury, and he says with a success that fully warrants us in considering it as very frequently a symptom of the venereal disease. It must be stated here, however, that, at the same time, he resorted to local treatment by means of the bougie. Copeland further remarks, while speaking of stricture, that it is much more frequent than physicians imagine, and is not so frequently of a cancerous nature as authors would lead us to believe.

Curling, in his *Observations on Diseases of the Rectum* (London, 1851, p. 79), in speaking of chronic ulceration of the rectum, says:—

“A few years ago, Mr. Avery exhibited at the Pathological Society, a specimen of ulceration of the rectum, the history of which clearly showed the connection of the lesion with syphilis, and its probable occurrence as one of the secondary phenomena of the disease. Immediately within the anus, which was surrounded by a circle of vegetations, the ulcer commenced, extending three inches upwards, and occupying the whole of the internal surface of the rectum to that extent. The edges were rough and uneven above, and below soft and rounded; the whole surface was smooth, exhibiting the muscular fibres of the intestine quite bare. The patient, a young woman, æt. 22, died in the Charing Cross Hospital, from erysipelas of the face, and had been troubled with a discharge from the rectum for about seven months previously. She had been in the hospital a year and a half before with an extensive sloughing ulcer in the fourchette. When she died she had numerous indelible marks of syphilitic eruption on the limbs and trunk, and was suffering from sorethroat.”

This ulceration of the bowel, we are inclined to believe, however, was not the result of syphilitic infection, but of chancroidal disease, and, had the patient lived, she would have been the subject of stricture in all probability, and that, too, in spite of any anti-syphilitic treatment which might have been adopted.

Mr. Curling, it would appear, is not a believer in the so-called “syphilitic stricture,” for, when speaking of stricture (p. 88), he remarks “that Dessault supposed that they were of syphilitic origin, but his observations in reference to that point are not satisfactory.

Mr. Quain, in his excellent work on the rectum, while speaking of ulceration, and stricture as a result, does not allude to venereal disease as a cause.

In turning to some of the standard authors on general surgery, we find Chelius (edited by South, American edit., p. 47), in enumerating the causes of stricture, includes syphilis as one. Erichsen makes no mention of any venereal stricture, but speaks of having met “that form which occurs low down, several times in young women otherwise perfectly healthy.” It is so also with Fergusson, Pirrie, and Druitt—they making no mention of a venereal stricture in their works on surgery. Gross, in his *Surgery*, says, “A *syphilitic stricture* is occasionally met with in the lower bowel, caused not by any constitutional taint, but by direct inoculation with cancerous matter.” The description he gives of this disease is more graphic than any we have met with in any work on surgery. Mr. Henry Smith, in his article on

diseases of the rectum in *Holmes's Surgery*, regards this disease as due to constitutional syphilis, and advocates "the exhibition of small doses of mercury and iodide of potassium" in the treatment of the same. Lancereaux, in his Historical and Practical Treatise on *Syphilis*, confirms the ideas expressed by Gosselin; and Bumstead, in his thoroughly comprehensive and classic work on venereal diseases, is an advocate of the disease being chancroidal and not syphilitic. Berkeley Hill, on the other hand, in his book on *Syphilis and Local Contagious Disorders*, while giving an accurate description of this stricture, says, many observers, among whom is Gosselin, do not regard this as a product of the syphilitic diathesis, but does not state his own views on this subject; we infer, however, he entertains the more modern view in regard to this affection when he says, "*In the treatment of syphilitic stricture of the rectum, specifics are of little value.*"

Among the more recent authors, we find that Dr. Van Buren, in his *Lectures upon Diseases of the Rectum* (1870, p. 109), regards the chancroid, especially when it takes on a phagedenic character, as the only mode in which any form of the venereal disease is certainly known to occasion stricture of the rectum.

On the other hand we find Mr. Allingham, in his recent work on *Diseases of the Rectum*, in referring to ulceration of the rectum, uses the following language: "I have no doubt that a good many are of syphilitic origin. They may be the result of either secondary or tertiary syphilis; and other syphilitic lesions will be observed, but sometimes the ulceration of the bowel, with a syphilitic history, is the only symptom present" (p. 158); and with reference to stricture of the rectum he says, "I am of opinion that some strictures are syphilitic in their origin, and, when they are, the patients generally do well" (p. 187). For these cases he also advocates anti-syphilitic treatment (mercurials and iodide of potassium).

In some of the cases of ulceration which he relates, we think we would rather regard them as the result of the chancroidal virus, than that of true syphilis. Again, Hamilton, in his recent excellent work on the *Principles and Practice of Surgery* (1872, p. 775), remarks, "that far the most common cause of rectal stricture in public practice is syphilis and chancroid. At Charity Hospital these cases are constantly under observation, and they are observed to be particularly frequent among the women. . . . It is often due to the cicatrization of a chancroidal ulcer; but in a majority of the cases the stricture has a nodular feel, and is accompanied with other evidences that the patient is laboring under a syphilitic diathesis." It is sufficiently evident both from this quotation, as well as his remarks which follow under the head of treatment, that he regards both syphilis and chancroid as at times giving rise to this disease. In consulting many of the authors we have just alluded to, especially the works on general surgery and treatises on affections of the rectum, we are inclined to regard, that the conditions which many of them are pleased to speak of under the term

"simple stricture of the bowels," both from the locality, sex, and appearances of the stricture described, as well as symptoms, were indeed, in many instances, the sole result of chancroidal disease. And some of the cases related as instances of the "simple stricture," we feel confident would now be regarded by many as a result solely of chancroids.

It is not to be wondered at, that this form of disease which we are considering was grouped among the constitutional effects of syphilis by those who wrote on this subject prior to the year 1852, up to that time all venereal sores being regarded as arising from one and the same poison. It was in this year (1852), it will be remembered, that the old doctrines entertained regarding venereal ulcers were overthrown by Bassereau, and the duality of chancrous virus clearly taught. And his views we believe are those now entertained by the majority of syphilographers of the present day.

The first who investigated the relation that stricture of the rectum held to constitutional syphilis, with the light just thrown upon venereal poison by the work of Bassereau, and who, we believe from our own studies, clearly pointed out the cause of this rectal lesion, was Dr. L. Gosselin. His investigations, be it remembered, were commenced in 1854, in the Lourcine Hospital at Paris. His conclusions were the results of observations made upon twelve patients, and his valuable paper was published in the *Archives Générales de Médecine* for December, 1854. All his cases were females, and the subjects of chancroids. But four of these cases presented symptoms of constitutional infection, and in two of his patients stricture was developed, while under his observation, in the wards of the hospital, they being under treatment for chancroids involving the anus. The conclusion arrived at by this distinguished investigator was, that the affection known as "syphilitic stricture" was due to the local sore, "the chancroid," rather than a result of constitutional syphilis.

Confirmatory of this view of the subject, Mr. Holmes Coote has reported a case in the *Medical Times and Gazette* for June 27, 1855. He says:—

"In 1849 a subject for dissection at St. Bartholomew's Hospital presented a singular morbid condition of the rectum; the canal was narrowed, and upon opening the bowel a large patch of mucous membrane equal in extent to the open hand of a man and involving the whole circumference of the bowel, had been destroyed by ulceration, leaving a firm and unyielding cicatrix, with irregular borders, and smooth reddish or brown surface, across which passed lines or seams. The surrounding parts were slightly thickened towards the anus, but otherwise not altered in structure. Those who saw the specimen were struck with the resemblance it offered to the cicatrix of a phagedenic ulcer as seen upon the external integument." . . .

Since the greater portion of this paper was prepared, we have read with pleasure the "Case of Fibrous Stricture of the Rectum" (evidently chancroidal in origin), reported by Dr. W. R. Whitehead in the number of

this Journal for January, 1871. In his remarks upon the case he states the arguments of Gosselin against the opinion that the disease is a constitutional effect of syphilis; and says they seem to be conclusive. He also mentions that "Despries points out very clearly the relation between phagedenic chancres of the rectum and stricture of this intestine," he having observed the progress of the disease from the appearance of the "soft chancre" about the vulva and anus to the complete development by cicatrization of a fibrous stricture in the lower portion of the rectum. In this paper, however, Dr. Whitehead still speaks of stricture "the consequence of syphilitic ulceration." We presume by this that he regards the chancre and chancroid as but different manifestations of the same disease.

In regard to the cause of this kind of stricture, and the views formerly entertained by writers on the subject of syphilis, it is not surprising that the disease came to be regarded as syphilitic in origin, and even at the present time is looked upon in that light by many in the profession.

It does not appear at all remarkable that we might expect to find constrictions in this part of the mucous tract, as well as in other portions, the result of constitutional infection. But is this the case? Do we find the burden of proof tending in this direction? From a careful study of what has been written on this subject, and from personal observation of now over some forty cases, and in a hospital which affords unlimited opportunities for the study of syphilis in all its varied manifestations, we have no hesitation in affirming our belief that venereal stricture of the rectum is due not to any syphilitic cause, but solely to the result of chancroids; and, if constriction of the intestine occurs as a result of constitutional affection, it must be an exceedingly rare exception to the rule. We have more than once seen a chancre on the verge of the anus, and mucous patches in that locality without number, and these patients have been under observation for months, but never have we found stricture to follow. Not so, however, in the case of chancroids in this locality.

We have repeatedly noticed the anus become contracted in women after the healing of several simple chancroids involving this portion of the intestine, and have predicted to the house staff that many of these women would in all probability, sooner or later, become the subjects of stricture. Could some of them have been retained several months in the hospital, we feel confident our predictions would have been verified.

I have made sure that these sores were true chancroids in repeated instances, by inoculation upon the thighs of the patients, and obtaining the characteristic ulcer. It was impossible to watch these patients, to see whether they returned to the hospital with any after-affection of the bowel, for various reasons, chief of which are, that our house staff are constantly changing from one service to another, and that a number of this class of our patients appear to deem it essential to assume a new name each time they apply for admission, and often enter a different service, and,

we not being on constant duty at the hospital, they readily escape the attention of the visiting surgeon. Within a few months, however, I have learned from Dr. Bell, visiting surgeon to the House of Mercy, that he has under his charge in that institution a patient with stricture of the rectum, who some time since states she was under my care for chancroids about the anus. The name she is now known by, however, does not appear upon the books of Charity Hospital, and therefore much that is of interest to me in her case is lost.

Of one of the cases which had been under my care for chancroids I have been able to learn the future history. This patient some little while after leaving my service returned to the hospital with stricture of the rectum and Bright's disease, from which latter cause she died in one of the medical wards. While under medical treatment she was also subjected to the occasional introduction of bougies. The post-mortem appearances of the rectum, as recorded on the hospital books, are as follows: "The rectum for a distance of about six inches is very much ulcerated, thickened and riddled with sinuses which freely communicated with each other, and with one which opens externally. There are little bridges of thickened mucous membrane, with sinuses underneath as high as five inches above the external sphincter. There is no distinct stricture, but a general narrowing of the bowel, from the thickening of its coats." With regard to phagedenic chancroids affecting the anus and eating into the bowel we have seen five cases, which, from the terrible destruction of the parts, we well remember.

Constriction of the rectum followed under our own observation, and that very shortly after the healing of the chancroids had taken place.

Another and strong proof to us that this disease is the result of chancroids, and not a sequence of syphilis, is, that in fifteen of our cases the patients not only denied ever having had any secondary or tertiary symptoms, but, after close inquiry and critical examination of the person, no such traces of the disease were to be discovered; while in two cases, which passed under observation, the symptoms of stricture preceded any secondary manifestation of constitutional syphilis.

Those who are prone to regard this stricture as a result of syphilis are accustomed, we believe, to group this among the later manifestations of the disease, as in the case of constrictions of the larynx and œsophagus. But with these latter organs the change is due to the result of gummy products, and the changes they undergo. We do not wish to be understood as denying, that gummy tumours ever occur in the lower portion of the alimentary canal; but in connection with stricture of the rectum, what observer has ever detected these deposits? With a view to determine this point, I placed in the hands of Dr. Edward G. Janeway, specimens of stricture of the rectum from two of my patients, and he reported, that nothing like gummy tubercle could be detected.

We are aware that cases of ulceration of the colon have been reported by

syphiliographers, evidently the result of syphilis, but these, as in Cullerier's cases, were cured by anti-syphilitic remedies, especially the iodide of potassium, in large doses administered both by mouth and rectum. Such cases, however, are exceedingly rare, and I do not know that stricture of the rectum ever was known to follow this ulceration.

Strictures of the rectum are admitted by all authorities, we believe, to be more frequently met with in the female, no matter from what cause they arise. In this particular variety, such undoubtedly is the case. All our cases occurred among women, and, as we have before stated, all our endeavours to find a case among the male patients of the hospital have been unsuccessful. Gosselin in his papers speaks of having seen it in the male, but regards it as a rare occurrence. Mr. Coote, however, in the article before referred to, says he is "informed by Dr. Turner, from Massachusetts, that he has frequently seen cases (so-called) of syphilitic contractions of the rectum in male patients in the hospital at Deer Island, Boston." I am not a little surprised at this statement, for in all the articles I have read on the subject of stricture, there is no one who has met with them in the male so frequently as they are said to have occurred at the Deer Island Hospital.

This disease we must regard from all our experience thus far as essentially peculiar to the female; and its occurrence in the male must be regarded as but a rare exception to the rule. And this statement, we think, will be confirmed by most observers.

The reason of the appearance of this disease so frequently in the female must be evident to any one at a glance. The facility with which chancroids upon the vulva will, from their secretions, inoculate the verge of the anus, and from this new foci of disease involve the rectal walls, is too well known to those who see much of chancroidal ulcers in the female. The way in which these strictures arise may be, *in our opinion*, as follows:—

*First.*—The walls of the rectum become inoculated through the secretions from the sores upon the vulva, thus giving rise to chancroidal ulcers in this portion of the intestine, and from the cicatrization of these ulcers, the constriction takes place.

*Second.*—The presence of chancroids either at the orifice of the vagina, or about the anus, gives rise to an inflammation of the areolar tissue surrounding the lower portion of the gut, and, by the effusion of inflammatory material at certain points, gives rise to constriction, either in this way alone, or by indirectly producing inflammation and ulceration of the mucous coat of the bowel.

*Third.*—From direct inoculation through improper connection—that this may occur, none will deny. But I have never been able to discover, from any of my patients, that such has been the case in any instance; though, at the same time, I have on several occasions seen patients enter

the hospital with chancroids upon the anus when none existed upon the vulva.

Mr. Holmes Coote, speaking under this head, says he is inclined to the belief that the disease begins in inflammatory thickening and granular degeneration, and thence ulceration, rather than ulceration from the commencement; and then asks, If so, is it a primary or secondary affection? For his own part he regards it as a primary affection.

The locality of this stricture is between one and two inches above the anus. In but three instances have we met with it as high up as three inches. From our experience we should locate its usual position as two inches above the anus. Thus in sixteen of our cases its locality was two inches above the anus.

Occasionally we meet with two strictures in the same individual. In three cases we have seen this condition very beautifully shown, and in all of them the lowest stricture was one inch from the anus, while the site of the second was about one inch above that of the first.

One case we had the opportunity of examining was regarded by some as an instance of three constrictions, but, as the third was hardly what I should call a well developed stricture, I am unwilling to view it in the light some took of the case, though, had the patient been permitted to go on without treatment, I doubt not she would have been the subject of three well developed strictures.

The appearances of this stricture and adjacent portion of bowel vary somewhat in different cases. And here let me say, that, to obtain a satisfactory view of the diseased parts, no speculum that I am acquainted with can compare to that of Sim's vaginal speculum. We have found this stricture evidently due to concentric thickening of all the tunics of the intestine, and in these cases the stricture was circular and very hard, perhaps some would denominate it "fibrous stricture." Again it resembled a diaphragm stretched across the bowel, and the orifice was either thickened or in some cases thin as a sheet of ordinary letter paper. In some instances the circumference of the opening was ulcerated, while in others no such action was detected. This diaphragm we speak of as stretching across the bowel, in some instances was tough and unyielding, while in others it readily yielded to slight pressure, and could be pushed upwards by the finger. The size of the opening varied very much, but as a rule the tip of the index finger would be permitted to pass without exciting great force. In one case, however, the constriction was so tight that it would only admit of a number four (English scale) urethral bougie. In not all the cases was the entire circumference of the bowel affected, and in the greater number of these it was the posterior portion that was involved. I regret that in the notes of all my cases the exact appearance of the stricture is not given. It is not uncommon to find little tubercles, or rather excrescences, in the immediate vicinity of the stricture, which at

times impart to the touch the sensation of a roughened condition of the mucous coat, while again it has a velvety feel. Ulceration of the walls of the intestine always existed to a variable extent above the stricture, while in some cases it was observed below the site of stricture, and at times even invading the margin of the anus. Some of these ulcerations were so characteristic of the sore that we are pleased to denominate *chancreoid*, that I feel confident, had they existed upon the vulva, none would have regarded them in any other light.

When the stricture is due to membranous bands involving only a portion of the calibre of the intestine, post-mortem examination will fail to reveal the presence of any stricture, owing to the great relaxation which then takes place in the parts. This circumstance was well shown in the autopsy of one of my cases, which a few days before death only permitted the passage of the finger with some difficulty. Upon inspecting the intestine after its removal from the body, my house surgeon naturally enough asked, "What has become of our stricture?" for the rectum would then, owing to its relaxed condition, have allowed the passage of the largest bougies.

Associated with this affection we not unfrequently find abscesses in the neighbourhood of the anus, fissures, hypertrophied condition of the integument, haemorrhoids of every description, prolapsus of the rectum, together with fistula in ano, and of the recto-vaginal or recto-labial variety.

In at least thirteen of our cases, some one of these complications existed.

With regard to fistula in *ano*, we have seen the communication with the bowel both above and below the site of stricture.

The *symptoms* which usually indicate the presence of this stricture are, first, an uneasy sensation, upon defecation, not amounting to positive pain, and which our patients have almost without exception referred to some uterine derangement, and for which, in more than one case, they have been subjected to treatment. Indeed, it was only a short time since that we were informed of the case of a lady who had been treated by no less than seven different physicians for the relief of this symptom, and yet not until she had fallen into the hands of the eighth medical man, was her rectum examined, and the source of her trouble detected to be a stricture of the rectum. Shortly after this uneasy sensation in the rectum begins, as a rule there is more or less constant discharge of purulent matter, and this at times associated with bloody discharges. The bowels are often constipated for a time, soon, however, to be followed by an almost constant diarrhoea, which may be at times utterly beyond the control of the patient. Upon examination, the bowel will be found extremely painful to the touch, and attempts to pass the finger through the stricture will often give rise to intense suffering; upon withdrawing the finger, it will be followed by a purulent or bloody discharge, or a mixture of both. Pain

almost constant may be complained of, either in the back, iliac regions, or down the posterior portion of the thighs.

Associated with these manifestations, we sooner or later meet a train of dyspeptic symptoms; and in several instances we have seen the stomach so irritable at times that the blandest fluids would give rise to vomiting. These symptoms, if allowed to continue, are apt soon to tell upon the general condition of the patient, and, from being robust, we have seen women become pale and emaciated; indeed, so feeble has been their condition that they were unable to leave the bed. In other cases sudden and rapid development of phthisis or Bright's disease has occurred, which soon brought the case to a fatal issue.

We have never seen death result from this disease alone; phthisis being the most frequent complication which ensues, and to which has been attributed the death of the patient.

Though this variety of disease is necessarily associated with a train of symptoms similar in many respects to those which accompany stricture arising from other causes, yet it has characteristics so peculiarly its own, that, with a careful investigation into the history of the case, and inspection of the parts, an error in *diagnosis* will scarcely be made. The only disease that it might be confounded with appears to us to be cancer. One case which occurred in the service of Dr. Chas. A. Budd, at Charity Hospital, and which I examined with him, certainly had very much the same indurated, lumpy feel which is met with in malignant stricture. This was the result of a cellulitis caused by the introduction of bougies.

With regard to chancroidal stricture, it is rarely met with in the male, its locality is that of the lower portion of the rectum; seldom will it be found at a point higher than three inches above the anus, the most frequent site being between one and two inches from this outlet. Cicatrices of chancroids almost invariably will be met with upon the genitals. No tumour or hard nodules such as we see in cancer are found either between the walls of the bowels, or the fungous excrescences projecting into the bowel. The ulceration above the seat of stricture gives rise to profuse purulent discharges (rarely a bloody one). With respect to this ulceration, we regard it as peculiar to this disease in its early stages, for in several cases of malignant stricture which we have seen, no extensive ulceration had commenced till the disease had existed some time, and in two instances we have seen malignant stricture without a vestige of ulcerative action; while in the chancroidal variety there is ulceration from the commencement of the disease. Both varieties of stricture are excessively painful. With the venereal the pain is principally when the stricture is touched, or during the periods of defecation. *Scirrhous* of the rectum, we believe, is more frequent during middle life, while chancroidal is met with chiefly between the ages of seventeen and thirty. In cancer the use of bougies often aggravates the disease, and at best is regarded as a question-

able mode of treatment; whereas the chancreoidal stricture is greatly benefited, if not in some instances cured, through this practice.

With the malignant variety, the disease is not necessarily confined to the lower portion of the rectum, and begins, we believe, by deposits in the walls of the intestine; lastly if the disease be cancer, the microscope will reveal the fact. We have said nothing with regard to the epithelial form of cancer which is met with at the same periods of life as the chancreoidal, in speaking of the differential diagnosis, but here as with schirrus, the microscope will reveal its true character.

In respect to the *treatment* of this affection, it must be conducted on very much the same principles which guide us in the management of stricture of the urethra; and as with the urethra, if we are unable to promise our patients that their trouble will never return, we may often place them in that condition in which, by careful attention and timely resort to proper means, they may be comfortable through life.

During my earliest experience with this disease, regarding it then as a syphilitic affection, I made faithful trial with anti-syphilitic remedies (mercurials and the iodide of potassium), but without the slightest effect upon the disease. Caustics, either in the solid form or in solution, I find only aggravate the suffering of the patient, without relieving the disease. Astringents given to check the diarrhoea will often prove but of slight avail, and suppositories given to relieve pain, often are but a source of great annoyance from the tenesmus which frequently follows their use. In all cases our medicines must be of the blandest variety, and in the use of bougies great care is required. The accidents which may happen with this instrument, and at times even in careful hands, are too well known to require any further mention at this time.

For the past two years we have found the greatest benefit to arise from the use of *subcarbonate of bismuth* given both by the mouth and by enema in combination with glycerine and water, and where great pain existed morphia or the aqueous extract of opium have been added, the latter, however, I prefer. Under this course of treatment the diarrhoea will often cease entirely, or be greatly under control, the ulcerations assume a healthy action, and the extreme sensitiveness of the parts subsides. Injections of warm water and oil were resorted to where the bowels were constipated, and in all cases an enema has been ordered daily of warm or cold water with a small quantity of carbolic acid for the sake of cleanliness. If too much of this acid is used, it *here* acts as anything but as an anæsthetic.

In the use of bougies, which must always be used for the purpose of dilatation, I have but in a few instances preferred to increase their size slowly; making use of the same bougie for some time even after the stricture permits of its easy passage. We believe we have found benefit to follow the smearing the bougie with the extract of belladonna, thereby lessening the pain the patient often suffers after the use of this instrument.

In a majority of cases we feel satisfied from our experience that the introduction of a bougie twice or three times a week will accomplish more towards a cure than a more frequent introduction, especially if the instrument be allowed to remain a few moments in the grasp of the stricture. Elastic tubes to be distended either by air or water have been frequently used for the purpose of dilatation, and in some instances perhaps have possessed advantages over the ordinary means, as for example in the case reported by Dr. Whitehead, in his paper before referred to. In his case, an India-rubber condom attached to the stem of a syringe being the means employed.

The beneficial effects which in some cases are observed in this variety of stricture to follow the use of the bougie, both during its use as well as for some time after the instrument has been abandoned, is well illustrated in the following case, related to me by my friend, Dr. W. B. Eager, Jr.

In August, 1864, Mrs. H., aged twenty-eight, came under his treatment with a stricture of the rectum, situated about two inches above the anus. Symptoms referable to this disease began during the summer of 1861. The stricture was too tight to admit the tip of the finger. She was treated by gradual dilatation for a period of a little more than three months, when the largest bougie could readily be passed, all her symptoms having now subsided, she was discharged cured. In 1858, this patient had two sores upon the vulva the size of the little finger nail, and two weeks afterwards a larger sore appeared upon the side of one thigh. From 1864 up to the present time, no manifestation of constitutional syphilis has the doctor observed. On the 15th of January, 1871, she again came under his treatment for trouble with her bowel. She stated she had been free from all rectal trouble until a year ago, when she noticed, if she allowed herself to become constipated, she would have trouble in defecation. She now complained of pain in the back and iliac regions, and painful defecation with almost constant purulent discharge from the bowel.

Examination showed the remains of the old stricture, but the calibre of the bowel at that point unimpaired. The wall of the bowel was rough and painful to the touch, due to ulceration of the mucous coat. Under sub. nit. bismuth in ten-grain doses three times a day, together with an ounce of the following injection every fifth or sixth day: Bismuth  $\frac{3}{4}$ j, glycerine and water, each two ounces, she improved rapidly, and on March 15th, 1871, the purulent discharge was not noticeable, nor the pain, while at stool, so acute. Here, then, is a case where no relapse has occurred during an interval of five years after the use of bougies was discontinued.

Where the stricture is of the annular variety and of firm, fibrous feel, we will expedite matters very much by resorting to the knife, after the manner proposed first by Wiseman in 1676 (South's Chelius, p. 51, vol. iii.). When division is resorted to, all that is required is to notch the stricture in three or four places, and these incisions need not exceed a line in depth. I have repeatedly resorted to this method with pleasing effects, and have never seen any troublesome hemorrhage follow. In all these operations the instrument we have made use of was Couper's hernia knife.

Immediately after this operation, we have passed a bougie of a size that would well dilate the parts. We much prefer this method to such means as forcibly tearing the stricture, either by the fingers or by the use of any instrument made for this purpose.

In a patient of Gosselin's, a girl, 18 years of age, in whom he had incised a hard fibrous stricture some months before death, the autopsy revealed no hard fibrous ring, though ulcerations above the stricture still continued.

In two of our cases, where the stricture appeared as a membrane stretching across the bowel, after having notched its circumference with the bistoury, and while the patients were still under the influence of ether, we passed one bougie after the other until the largest size was reached.

Both these cases were of recent origin, and a cure was rapidly obtained, without an unpleasant symptom.

In those sad cases of this class of stricture with which we every now and then meet, where the ulceration is extensive, and often little progress has been made in dilatation, yet the pain on defecation is so excessive, and which, together with profuse purulent discharges, is fast sapping the constitution and hurrying the patient towards an early grave; in these cases, as in those of cancer, I believe we are justified in resorting to lumbar colotomy, and thus mitigating if not entirely relieving the sufferings of the patient, despite the great inconveniences which naturally arise from an artificial anus.

For some time I have believed this to be the proper course to pursue, and would have adopted it in two cases, had not a rapid phthisis supervened in one case, and general anasarca from Bright's disease in another, which speedily terminated in death.

I had never known that lumbar colotomy had ever been proposed, still less put in practice, in this type of stricture, till I read the very excellent paper of Mr. Wm. Allingham, F.R.C.S., on *lumbar colotomy*, in vol. i., new series, of *St. Thomas's Hospital Reports* for 1870.

In this paper is given the history of a woman, æt. 24 years, who was the victim of a venereal stricture. The stricture had been previously watched and variously treated for some time, but the constriction increased despite all that was done. The bougie had been used, and retained for some days at various times, and the band forming the constriction was superficially divided with a straight knife in five or six places round the circumference of the bowel, and gentle dilatation used afterwards; but all seemed of no avail. The ulceration also perforated the septum into the vagina. After about two years of suffering, lumbar colotomy was performed in November, 1867. Four months after the operation she had gained ten pounds, and felt quite well in general health, and was able to go about and conduct her business as a milliner. The ulceration in great part healed without her taking any medicine, but the stricture continued tight. Ten months after the operation the patient came to this country; the ulceration had then quite healed, and the opening into the vagina had closed spontaneously. So comfortable was she, that she declined to have

anything further done with the stricture. Mr. Allingham adds that he has recently heard from this patient, and she continues quite well.

Another case is related, occurring in a man, aged 33, and the cause of his stricture appears to us to have been very likely due to chancroid. Colotomy was performed in 1866; at the time of writing his paper, 1870, the patient was well and able to carry on his business, that of watch-making.

*Table of Thirty-one Cases of Venereal Stricture of Rectum.*

Age.	Has had Constitutional Syphilis	Complications.	Locality of Stricture.
24	No.....	Recto-labial fistula and phthisis	between 2 and 3 inches above the anus.
36	Yes.....	Hæmorrhoids and prolapsus of rectum.....	2 inches above the anus.
24	Yes.....	Anus fissured and ulcerated....	3 " " "
23	No.....	Recto-vaginal fistula and phthisis	2 " " "
38	No.....	Bright's disease.....	2 " " "
26	Yes.....	Recto-labial fistula.....	2 " " "
22	Yes.....	Phthisis and Bright's disease....	2 " " "
28	Yes.....	Recto-vaginal fistula and fissures of the anus.....	2 " " "
33	No.....	Fistula in ano.....	2 " " "
29	No.....	Perineum almost entirely destroyed by a phagedenic chan-	
		roid.....	
29	Yes.....	None.....	1 " " "
28	Yes.....	None.....	2½ " " "
24	No.....	None.....	2 " " "
29	No.....	Fistula in ano.....	1½ " " "
			Two distinct strictures: first one about an inch above the anus, and the other two inches above the anus.
24	No.....	None.....	2 inches above the anus.
29	Yes.....	Fistula in ano.....	" " "
35	Yes.....		Two strictures; one half an inch above the anus, the other three inches.
29	Yes.....	Perineum almost entirely de-	1 inch above the anus.
		stroyed from chancroids.....	
28	Yes.....	Phthisis.....	2 inches above the anus.
34	Yes.....	Enormously hypertrophied labia	2 " " "
29	No.....	Recto-vaginal fistula.....	1½ " " "
20	Yes.....	Recto-labial fistula.....	1½ " " "
19	Yes.....	Recto-vaginal fistula.....	1 " " "
37	No.....	" " " .....	2 " " "
24	Yes, but not till 33 mos. after stric-	" " " .....	2½ " " "
	ture.....		
20	No.....	" " " .....	2 " " "
31	No.....	" " " .....	3 " " "
28	No.....	" " " .....	2 " " "
25	No.....	Recto-vaginal fistula.....	2½ " " "
21	No.....	" " " .....	3 " " "
21	Yes, but not till 4 years after she had stricture....	" " " .....	2½ " " "

In 15 cases there had been no symptoms of constitutional syphilis.

In 14 cases there had been symptoms of constitutional syphilis. In some of these cases stricture appeared just after having had chancroids.

Recto-labial fistulæ were present in 3 cases.

Recto-vaginal " " " 2 "

Fistula in ano " " " 4 "

Location of stricture was in 16 cases two inches above the anus.

" " " 3 " one and a half inches above the anus.

" " " 5 " between two and three inches above the anus.

" " " 2 " there were two distinct strictures.

" " " 3 " one inch above the anus.

" " " 3 " three inches above the anus.

Age of youngest patient, 19 years.

" oldest " 37 "

In conclusion, the deductions which we would draw, both from what we have read and from personal observations with this form of disease, are as follows :—

The disease appears peculiar to women ; that it occurs chiefly between eighteen and thirty-five years of age.

The locality of the stricture, as a rule, is between one and two inches from the anus.

That anti-syphilitic remedies (mercurials and iodide of potassium) possess no beneficial influence over the disease.

That this disease is more frequent than is generally supposed.

That though unwilling to deny that a constriction of the rectum might occur, as a sequence of a *syphilitic ulcer*, yet we believe that such occurrence must be *remarkably rare* ; and therefore the term “*Syphilitic Stricture*” is an improper name, and hence the disease, being due to the chancroid, should be known as the *Venereal*, or rather *Chancroidal Stricture*.

That where constitutional syphilis exists in a patient with this form of stricture, it is but a mere coincidence, there being nothing in the syphilitic disease preventing a patient contracting chancroids again and again.

That in the treatment of this disease, caustics, no matter of what variety, tend but to aggravate the disease ; and when the patient passes from under our care, she must be told of the necessity of occasionally introducing a moderate sized bougie. And finally in some obstinate cases of ulceration and stricture, lumbar colotomy is not only justifiable, but requisite either as a means for relief of suffering, or towards a radical cure of the disease.

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ART. III.—*On Thrombosis of the Arteries of the Extremities.* By  
JOHN A. LIDELL, M.D., of New York.

IN a paper published in the number of this Journal for October, 1872, the writer gave an account of thrombosis as it presents itself in the chambers of the *heart*, in the *pulmonary artery*, and in the *veins* of the extremities. In the present article, however, he proposes to discuss, also mainly from a clinical stand-point, thrombosis as it occurs in the systemic arteries, especially those which belong to the extremities.

But, before commencing this discussion, there is a preliminary question of great importance which should be clearly stated and fully met. It is the following : Does the blood ever spontaneously coagulate in the peripheral arteries during life, as we have elsewhere shown that it not unfrequently does in the peripheral veins, or, in other words, does systemic arterial thrombosis ever take place ? This question must be answered in

the affirmative. The occurrence of such cases as the following, related by Billroth, places the matter beyond cavil and doubt. He says:—

“Not long since I observed an old man, who was taken into the hospital for spontaneous gangrene of the foot. He was so thin and the arteries were so rigid, that the pulsations of the femoral could be distinctly followed into the hollow of the knee. Subsequently the gangrene progressed, and at the same time the pulsation in the lower part of the artery ceased. About a fortnight later, shortly before death, when the gangrene had advanced to the knee-joint, the pulsation had ceased at Poupart’s ligament. The autopsy confirmed the diagnosis of complete arterial thrombosis. The gangrenous leg was so completely mummified that I cut it from the body, and, to preserve it from further destruction and worms, varnished it. It is still in the surgical museum at Zürich.” (*Billroth’s General Surgical Pathology and Therapeutics*, p. 301, Am. Translation, 1871.)

We are, therefore, fully convinced that thrombosis of the systemic arteries really does occur.

But little attention appears to have been paid to this subject by English and American physicians. While much has recently been written on thrombosis of the peripheral veins, and on the plugging of the peripheral arteries, as well as the pulmonary, with embolia that have been brought from some distant part, very little has been said concerning the spontaneous occlusion of the peripheral arteries with coagula that have been formed from the blood on the spot. No mention whatever is made of arterial thrombosis even in the revised edition of Holmes’s admirable *System of Surgery*, a work which claims to be brought “as far as possible, up to the latest time, both in authorized teaching and practice,” although venous thrombosis and arterial embolism are both discussed in it with considerable fulness of detail. *Aitken’s Science and Practice of Medicine*, *Tanner’s Practice*, and *Hughes Bennett’s Clinical Lectures*, also, do not contain any account of arterial thrombosis, although they are quite recent and decidedly voluminous works. Thus, it can be proved, if proof be needed, that thrombosis of the systemic arteries has hitherto attracted but little notice among English-speaking surgeons and physicians.

This subject, however, possesses no small degree of importance. Arterial thromboses is a disorder which not unfrequently presents itself in the extremities, as well as in other parts of the body. When these members are attacked with the so-called senile gangrene, it is generally, but not always, the principal cause. When symptomatic gangrene of the limbs occurs in the course of typhus and other forms of continued fever, in acute rheumatism, and in lying-in women, arterial thrombosis is often the sole cause. Finally, when the arteries of the extremities are obstructed with embolia, the vitality of the limb is generally not destroyed unless the embolism is supplemented, and the occlusion made complete, by the occurrence of thrombosis in the obstructed vessel itself, or in the collateral channels.

The data upon which this article is founded were gathered by the writer

mainly for his own instruction; but, thinking that they might be of interest to others, he has put them in shape for publication. Moreover, after what has just been said concerning the importance of the subject and the dearth of information with regard to it, no apology would seem to be required, if, perchance, the discussion of it in the following pages should be pretty thorough, and should attain considerable length.

*Historical Sketch.*—Before the time of William Cowper the occurrence of senile gangrene was commonly attributed “to a decay of nature, or an extinction of the vital warmth.” (*Naish.*) About the year 1702, however, that distinguished surgeon and anatomist, *i. e.* Cowper, found the arteries extensively ossified in a leg affected with this disease which he had amputated for a man, in the sixty-seventh year of his age. Commenting upon this circumstance, he says: “I doubt not, but the like has often happened in aged people, especially where we find the progress of the gangrene not very swift, and its beginning from no external cause.” (*Philosophical Transactions*, vol. xxiii. pp. 1195, 1196.) In a subsequent contribution, after again mentioning the same case, he remarks: “Since which I have met with several of the like instances in people of years, particularly in the leg of an old gentleman, whose toes and foot were sphacelated, the arteries of whose leg I have still by me, . . . . injected, as much as they could be, with red wax; in which the ossifications diminishing their channels in some places, and totally obstructing them in others, is made very evident. (*Ibid.*, vol. xxiv. pp. 1970, 1971.)

In 1721 Mr. Edward Naish, on examining the arteries of a leg which he had amputated because of gangrene, for a gentleman, aged 67, “found them for the most part ossified; that is to say, the trunk, where it was amputated, was ossified about two-thirds of its circumference. About a quarter of an inch lower the whole was bony, leaving so small an orifice that it would only admit of a hog’s bristle; not a very fine probe that I endeavoured to introduce. A little lower it was on one side bony, on the other membranous, then again an entire case of bone. Here and there, for the breadth of a barley-corn, there would be no bone at all.” He also says: “This ossification . . . . was, no doubt, the cause of the mortification.” Furthermore, he declares: “I don’t doubt but these cases are more common than we imagine. For when we see mortification seize the extremities of aged people, which we commonly attribute to a decay of nature, or an extinction of the vital warmth, this, I believe, is often the cause. And I am the more inclined to think so from two or three parallel cases I have been concerned in. (*Ibid.*, vol. xxxi pp 226–228.)

The sagacious Pott, however, about the year 1780, observed concerning the causation of spontaneous gangrene: “It has by some been supposed to arise from ossification of the vessels; but for this opinion I never could

find any foundation but mere conjecture." (*The Chirurgical Works of Percivall Pott*, vol. iii. p. 334, London, 1783.

In 1814 Mr. Hodgson wrote as follows on this subject:—

"The obstruction which is offered to the passage of the blood by the deposition of calcareous matter in the internal coat of arteries, was noticed many years ago by Cowper and Naish, and has been adduced as a frequent cause of mortification, more especially in the feet of old persons. Experience has proved this condition of the arteries to be at least a constant attendant upon one species of gangrene, to which the extremities of old subjects are liable; and I have found the three principal arteries of the leg nearly obliterated by calcareous matter in two fatal cases of this disease." (*Hodgson's Treatise on the Diseases of Arteries and Veins*, etc., p. 41.)

A few years later the illustrious Dupuytren made an important discovery concerning the etiology of this disease. On examining post-mortem the body of an old woman who had died of gangrene of the leg, at the Hôtel-Dieu, in 1824, he found that the arteries of the leg were obstructed with coagula; "here and there clots were noticed which plugged the vessel." In the same year, in a man aged 60, who had died of gangrene of the serotum, he notes that "in the iliac vessels there were several clots." Subsequently he met with some very striking cases in which mortification of the extremities was produced by the blocking up of the main arteries with coagulated blood; and in one of them, the obstruction-symptoms were so well marked that, two days before the patient's death, he predicted that "the internal [common] iliac artery would be found plugged as high as the aorta." (*Dupuytren, on Lesions of the Vascular System*, etc., pp. 18-23. Sydenham Soc. Translation, London, 1854.) No doubt other observers had already found coagulated blood in the arteries of the limbs affected with so-called spontaneous gangrene, but they had, so far as we know, attributed its formation to the gangrene itself; they had considered these arterial coagula to be consequences and not causes of the sphacelation, and in correctly interpreting this relation really consists Dupuytren's discovery. This great surgeon also held that the occluding clots in cases of spontaneous gangrene were mostly formed as a consequence of arteritis. He says: "The coagulation may arise in different ways; either by the contact of the blood with the inflamed membrane, or by mixing with coagulable lymph, or by ulceration of the artery;" but according to his views it always has its origin in arteritis. We shall, however, in the sequel, show that inflammation of the arterial tunics is not essential to the formation of coagula in the arterial canals, and that when we find, on examination post-mortem, arterial thrombi attended with arteritis, the inflammation is quite as apt to be the consequence as the cause of the thrombosis.

Cruveilhier held with Dupuytren that obliteration or occlusion of the arterial canals in consequence of inflammation is the most frequent cause of so-called senile gangrene. He also proposed to substitute for the terms senile and spontaneous gangrene, that of gangrene from the obliteration

of arteries. He supported Dupuytren's views, partly by new observations, partly by experiments on dogs, having succeeded in artificially producing gangrene by injecting irritant liquids into the arteries of the extremities of those animals. Cruveilhier also showed that a complete occlusion, not only of an arterial trunk, but likewise of its ramifications, with coagula (restraining all afflux of blood, whether direct or collateral, to the affected part), is indispensable to the production of gangrene. Concerning the method by which the arterial canals become occluded in such cases the same writer says: "Arteritis, like phlebitis, has for its immediate result the coagulation of the blood at all points corresponding to the internal inflamed surface of the vessel." (*Anatomie Pathologique du Corps Humain*, livr. xxvii. pp. 2-4.) In other words, the arterial canals in such cases are obliterated with blood-clot. But a closing up of arteries like this does not of necessity require the presence of arteritis to occasion it; any cause, as Carswell has demonstrated, sufficing, provided it produce a coagulation of the blood within these vessels (*Hasse*). Finally, Virchow, after showing that both phlebitis and arteritis, although often spoken of, are in reality very rare diseases, that neither of these inflammations is necessarily present when the formation of thrombi in any of the vascular canals occurs, and after pointing out the fallacy of some of Cruveilhier's experiments together with the erroneousness of some of his interpretations, proposed that the term *thrombosis* should be employed, not only in the place of phlebitis, but in the place of arteritis also; and his proposition has been generally accepted.<sup>1</sup>

*Clinical Relations and Varieties.*—Thrombosis of the arteries of the extremities has been observed much more frequently in connection with the so-called spontaneous gangrene of the aged than with any other disorder. The cases in which arterial thrombi were first discovered by Dupuytren were instances of what he called symptomatic gangrene, and occurred in subjects who were well advanced in years. We shall, therefore, in the first place, relate some instances of the so-called senile gangrene, in which the sphacelation appears to have been due to thrombosis of the arteries supplying the affected parts. The following is a brief account of Dupuytren's first case. It is here presented because it possesses some historic interest, besides affording a good illustration of the connection which subsists between arterial thrombosis and senile gangrene.

*CASE I. Dry gangrene of left foot, typhoid symptoms, and death; autopsy; the arteries, especially the left tibials, extensively ossified; the left tibials and*

<sup>1</sup> Troussseau and Rigot (*Arch. Gén.*, 1826 and 1827) had previously found that neither alcohol (of 36 degrees; sp. gr. 0.835), nor dilute nitric acid, nor putrefying animal substances, determined any inflammatory reaction in the internal membrane of arteries; such a result being only attainable by acrid substances, like the tincture of cantharides and of euphorbium, employed by Sasse. (*Hasse's Pathological Anatomy*, p. 65, Am. ed.)

*their branches here and there plugged with thrombi; corresponding veins also filled with thrombi.*—Catherine D., aged 71, a servant, was admitted into the Hôtel-Dieu in March, 1824. Health generally good until between two and three months before admission, when a black spot appeared, without apparent cause, on the third toe of the left foot, accompanied by pain which deprived her of sleep; the gangrene spread rather rapidly, and in two months involved the whole anterior half of the foot. There was a violet-coloured circle of inflammation found on both the upper and lower surfaces of this foot, to which the patient referred her suffering. The pulse intermittent irregularly. She was bled with marked relief and the foot was poulticed. About a fortnight after admission she became delirious; the gangrene again began to spread, she gradually sank, and died on May 5th.

*Autopsy.*—The mortified toes were denuded, dry, black, and considerably shrunken. The tendons and a part of the ligaments were destroyed, and the bones themselves had become diminished in size. The third metatarsal bone was partly carious. The arteries of this part of the limb presented traces of common osseous degeneration in an early stage; here and there *clots* were found which plugged the vessel. The veins, as far as the middle of the thigh, and especially the deep ones, were filled with dark clots. At some spots these clots had the yellowish appearance of fibrin. The aortic orifice of the heart was narrowed, but presented no ossific deposit. At some points of the aorta, the first traces of atheromatous degeneration were observable; at others there were bony patches of limited extent; there was one of larger size immediately above its bifurcation. The right carotid, brachial, and femoral arteries presented, here and there, flaky deposits of bone. In the affected limb these were more numerous; indeed, both tibial arteries were almost entirely converted into bone. (*Dupuytren on Lesions of the Vascular System, etc.*, pp. 18, 19. Sydenham Soc. Translation.)

*Comments.*—This case may be presented as not a bad illustration of a pretty large class of cases in which mortification of the extremities spontaneously occurs. An old woman, while in apparently good health, was attacked, without apparent cause, by dry gangrene of one of her toes. The disease steadily extended itself. In two months it involved the anterior half of her foot, and in about four months destroyed her life by inducing septicæmia. On examination post-mortem, the arteries belonging to the affected part were found to be occluded with thrombi, which had arrested the blood-supply. The walls of these vessels also exhibited well-marked atheromatous and calcareous degeneration. This case then was an example of dry gangrene resulting from a thrombosis which began in the *minute arteries* of the lower extremity. As fast as the larger twigs became plugged up, the disease extended itself, until finally it destroyed the greater part of the foot, but at no time did the large arteries of the limb become involved.

It is worthy of special remark that there is no evidence whatever that arteritis was present in this case; there was no inflammatory reddening, no softening, no serous infiltration, no fibrinous exudation in the arterial tunics. On the contrary, it is distinctly stated that the arteries of the affected part presented traces of common osseous degeneration. Now, the process by which the coats of arteries become atheromatous and calcified, as the coats of these arteries appear to have done, is an exceedingly

chronic one, and must not be confounded with any acute or sub-acute inflammatory process.

Moreover, the coagula which plugged the arteries in this case were not embolia that had been brought in the blood from some distant part, but they had been formed out of the blood itself on the spot where they were found. Now, what induced the blood to coagulate in the living arteries with such destructive consequences in this case, or, in other words, what were the causes of the thrombosis in this case? They were several in number, and as follows: 1. Atheroma and calcification of the affected arteries. In consequence of this disorder the calibre of these vessels became diminished, especially in spots, and thus the blood-streams were retarded. In consequence of this affection also, the inner surface of these arteries became rough and disposed to the fixation of blood-clots. Finally in consequence of this affection, the walls of these arteries lost their elasticity and contractility and became unable to assist any longer in producing the onward movement of the blood. 2. Enfeebled action of the heart. In this case the heart being weakened by the decay incident to old age and likewise irregularly intermittent in its action, was no longer able to readily force the blood through the capillaries, especially in remote parts of the body, such as the toes and feet. 3. Increased coagulability on the part of the blood itself. It is not improbable that this old woman had acquired an hypnotic condition of the blood with an excess of the white corpuscular element, which caused it to coagulate more readily, and with smaller provocation, than it does in the normal state. Considering that all these causes of arterial thrombosis co-operated in this case, it is not difficult to understand both why the blood coagulated in the arteries of a remote extremity and why the coagulation began in the remotest capillaries of that extremity.

It should also be mentioned that venous thrombosis was likewise present in this case. "The veins, as far as the middle of the thigh, and especially the deep ones, were filled with dark clots." The same complication was observed in some other, but not in all, of Dupuytren's cases. There is reason to believe that when thrombosis occurs in the arteries of the lower extremity this complication is not unfrequently present. In the case just related, however, it does not appear to have done any particular damage, and probably did not occur till near the close of life.

The next case belongs to the same category as the foregoing. It occurred in the writer's practice.

**CASE II.** *Arterial thrombosis of the lower extremities; stagnation of blood in feet and legs; spots of gangrene occurred on feet; acute bronchitis, central thrombosis, and death; no autopsy.*—J. H., carman, aged about 70, but looking much older, native of Ireland, but a resident of New York for forty-two years, strictly temperate, rather thin and very pale, although he claimed that his health had generally been good, indeed,

he said that he had not been sick enough to employ a doctor for more than thirty years, until *January 12, 1867*, when the writer was called and found him in bed. He complained of feeling very dizzy and weak, and it was on account of these symptoms that I was brought; pulse 90; respiration 18; skin warm; tongue clean; bowels confined; appetite poor. He sleeps badly, and has much pain in his feet and legs. On examining these parts I found that the great toe and heel of his right foot, and the little toe and neighboring border of his left foot had been attacked with so-called senile gangrene. The mortification was limited, and lines of demarcation were already formed. The gangrenous spot on his heel was as large as a silver dollar. The slough on his great toe had fallen off to considerable extent, enough to lay bare both phalanges on their inner and upper aspect. The gangrene in the left foot, however, had not progressed so far. It involved the outer edge of that member at the base of the little toe, through a space about the size of a franc-piece, but the bone was not exposed, and a line of separation was forming. Both feet were also dark-red, swelled, hot, and tender; and on the dorsum presented, in addition, a remarkably tense appearance. His legs were likewise swelled, dark-red, and affected with a vesicular eruption; but the right leg, like the right foot, was more extensively diseased than the left one.

On inquiry I learned that the disorder in his feet began in the forepart of autumn; that the right foot was affected first; that this member became swelled, dusky-red, hot, and very painful; that about six weeks afterwards, *i. e.*, in the month of November, a black spot of incipient gangrene appeared on the great toe of this foot, at its inner side, and gradually extended itself; that in November the left foot also became affected with dark-red swelling, heat, and severe pain; that in the month of December a gangrenous spot presented itself on the outer edge of the left foot, near base of little toe, and slowly spread; that the occurrence of gangrene was attended with an increase of the pain in his feet, and that this pain abated considerably as soon as the lines of separation were formed.

The offensive odour of mortification was present. The eschar had fallen off from the great toe to a great extent, leaving the phalanges, for most part, bare, dry, and white. The eschar on his heel and on his left foot, however, had not yet dropped off. The femoral artery in each limb was ossified. The patient was very spare in habit and therefore the superficial femoral vessels could be quite readily examined. Prescribed magnesia sulph.  $\frac{3}{2}$ ss. in ginger tea, to move his bowels, tinct. aconiti radicis, gtt. j. in water, every four hours, to relieve his cerebral symptoms, liquor sodæ chlorinat. dilut. (part 1 to 12), to be applied on compresses to his feet and legs, and allowed a nourishing diet.

*January 13.* His bowels have not acted; ordered another dose of magnesia sulph., which produced the desired effect. After this he gradually got better, his appetite returned, his strength improved, the vertigo became much less troublesome, the swelling and the vesicular eruption disappeared from his legs, the swelling of his feet abated considerably, and the sores looked better and began to granulate.

*22d.* Again complains of having much pain in his feet; ordered lotio plumb. acetat. (3j.) et opii (3j.) to the pint, to be applied to them. He was, however, now sitting up in his chair, with his clothes on, and feeling as well or better than he had done for some time before I was called.

*24th.* His feet are doing well, and his general health is steadily improving.

*February 1.* He is not so well again. He has caught a cold and got bronchitis. His skin is hot and dry; pulse 90; breathing hurried, with considerable cough and abundant expectoration of unstained mucus; sleep uneasy; and he has nocturnal delirium, from which, however, he can be roused. He has anorexia, and is much debilitated. Prescribed ammoniæ murias, grs. viii. dissolved in syrup. zingiber. f 3j. every four hours; also pil. quiniæ sulph. (gr. j.), every four hours; but these medicines are not to be taken together, or at the same time. Ordered also a large sinapisum to be applied to his chest, and to be kept on as long as he can bear it.

*3d.* The fever has left him, and his breathing is no longer hurried. Prescribed syrup. senegæ, syrup. scillæ, āā f 3j., mucilag. acaciæ, f 3ij. M. A tablespoonful every four hours. His bowels were confined; directed them to be moved with magnesia sulph. in ginger tea. His mind continues to wander but his feet are doing well.

*6th.* General condition about the same as at last report. He does not sleep at night. Prescribed pulv. Doveri, gr. x. to be taken at 7 P. M. and to be repeated in two hours if necessary. He is also taking brandy punch pretty freely, and pil. quiniæ sulph. (gr. ij.) every four hours, with the expectorant mixture above mentioned. His feet are being dressed with lotio plumb. et opii.

*7th.* One Dover's powder has made him sleep all night; intellect more clear this morning; tongue continues dry, but he has no febrile movement. Prescribed sodæ nitrat. 3ij., morphiæ acetat. gr. i., syrup simp. ad. f 3ij. M. A teaspoonful every four hours, in water.

*8th.* His feet are doing well, and he is quiet and comfortable, but his tongue continues dry and he has no desire for food.

*11th.* Strength gradually failing; tongue still dry, and he declines food. Prescribed sol. potass. chlorat. gr. x. four times a day; milk-punch and eggnog. Prescribed also ol. ricini f 3j. as his bowels were torpid and had not moved for several days.

*13th.* Much worse; countenance pale, pinched, and anxious; pulse intermits at every third beat. He is also much troubled with phlegm, which produces rattles in his throat.

*14th.* Failing rapidly, and scarcely able to articulate; says he is free from pain and distress; pulse 90, weak, and intermittent; respiration 30; much troubled with phlegm in throat.

*15th.* He continued to sink, and died at 7 o'clock P.M. An autopsy could not be obtained.

His feet, however, were doing well when he died. The ulcers were granulating. The swelling had entirely departed from his left leg and foot. It had likewise quite gone from his right leg, and almost disappeared from his right foot. He laboured under the mistaken idea that the gangrene was entirely due to local causes. He told me, several times, that all the trouble in his feet had been produced by corns.

*Comments.*—Although no autopsy could be obtained, we have but little doubt as to what happened to this aged patient, since we know what has occurred in analogous cases. In his case the coagulation appears to have simultaneously commenced at several different points in the minute arteries of his feet and toes. He also had advanced senile marasmus, and was very pale. There is good reason to believe that, on account of this marasmus, his blood had become abnormally coagulable. His arteries, also,

were affected with the atheromatous and calcareous degeneration. Besides, his heart-beat was feeble. No wonder, then, that thrombosis occurred in those parts of his body where the arteries were most thoroughly degenerated, where the distance from the heart was the greatest, and where the blood itself would soonest stagnate. No wonder, also, that it began in the capillaries of those remote parts, for it is in these vessels that under such circumstances the stagnation would first appear.

This patient, also, appeared to have venous thrombosis of his lower extremities. The obstruction-symptoms consisted of dark-red congestion and oedematous swelling of his feet and legs, together with enlargement of the small subcutaneous veins from dilatation of their calibre with stagnating blood. The symptoms of venous obstruction did not present themselves until the disease was far advanced; but they were not, at any time, very strongly marked. Finally, he died apparently of thrombosis of the heart and pulmonary artery, as mentioned above; at least the symptoms which are usually produced when the right chambers of the heart and the pulmonary artery are obstructed with blood-clots, were unmistakably present during the closing hours of his life.

Concerning the variety of arterial thrombosis which has its origin in the minute arterial twigs of the extremities and induces gangrene, because it occludes these vessels—the variety of arterial thrombosis which we have just described—we should further remark, that it is met with only in persons who are enfeebled by advanced age, or by exhausting disease, or by premature decay, and therefore has with propriety been called *marasmic thrombosis*, or thrombosis from marasmus.

We shall now proceed to speak of another important variety of arterial thrombosis, namely, that in which the coagulation primarily occurs, not in the terminal branches, but in the main artery of the limb. We shall not be surprised to find that its phenomena differ considerably from those which belong to the variety described above. The following case, originally observed by Dupuytren, affords a good illustration of this *second variety of arterial thrombosis*:

*CASE III. Gangrene of right foot, leg, and thigh; death; autopsy; thrombosis of right femoral, external, common, and internal iliac arteries; right femoral vein also filled with thrombi; vessels near the ham occupied with coagula; viscera healthy, etc.*—A woman, aged 40, of spare but active frame, who had always enjoyed good health, was admitted into the Hôtel-Dieu, with commencing gangrene of the right leg, July 15, 1832. She said she had recently suffered from cholera; but, on being questioned, the only symptom was violent cramp in the right leg. A dull pain was also felt in the right iliac fossa; it extended first along the inner side of the thigh, and then along its posterior aspect to the calf of the leg, and so on to the sole of the foot and toes. The next symptoms in these parts were a stinging sensation and lancinating pains, succeeded by a burning feeling. After this, and about ten days before admission to the hospital, the foot became cold and purple in spots; the pain also became so severe as to prevent her sleeping. On examination, the right leg was found swollen to double its natural size up to the knee. The skin was also

tense and shining, and of a purple hue, which increased in intensity towards the toes; and the discolouration was so disposed as to impart a mottled appearance to the limb. There were some points of vesication, and the loss of sensibility corresponded to that of temperature. The pulsation of the femoral artery in the affected limb could scarcely be detected, so indistinct and feeble was it; and this vessel appeared as if converted into a hard and almost incompressible cord throughout its entire course.

The patient was repeatedly bled, and the limb enveloped in a poultice. The mortification, however, spread upwards, and ultimately involved the whole thigh. She died thirty-five days after admission to the hospital, and forty-five days after the gangrene first appeared.

*Autopsy.*—The body was much emaciated. The gangrenous limb was still much swollen, and the skin dark, hard, and dry. Three large eschars presented themselves on the right side and back of the pelvis, extending from the iliac crest across towards the left side. In the middle of the thigh the femoral artery was contracted, but in other respects had a normal appearance; it was, however, filled with a filiform, reddish clot, which seemed as if it had been formed after death. Near the crural arch the artery resumed its natural calibre, but was hard, incompressible, and occupied by a clot, which was red on the surface, and slightly adherent to the lining membrane of the vessel; in its centre it was gray, and seemed to be formed of discoloured and broken-up fibres. This condition existed as high as the common iliac trunk, and even extended a little into the left iliac, but without obliterating it. The right internal iliac artery was also obstructed by a similar clot. The femoral vein of the same side was occupied by a reddish clot. The vessels on the left side, together with the aorta and the heart, were nearly empty. The capillaries between the gangrenous and sound parts were highly injected. The skin of the mortified leg was dark and hard, like parchment; the subcutaneous cellular tissue was of a grayish-yellow colour; the muscles and nerves were bright-red; the vessels near the ham were filled with clot similar to that in the thigh, but lower down they contained a reddish serum. The deep areolar tissue was infiltrated with this serum, and at some parts sloughy; the bones were pale.

The viscera were healthy, except an increased redness of the small intestine. (*Dupuytren on Lesions of the Vascular System, etc.*, pp. 20-22, Sydenham Soc. Translation.)

*Comments.*—This patient was not old, being only 40 years of age. The disease ran a comparatively short course, inasmuch as it terminated fatally in forty-five days. The symptoms were very strongly marked both in respect to the gangrene and the pulseless and cord-like condition of the femoral artery. The diagnosis, during life, was therefore easily made. The popliteal, common femoral, external, internal, and common iliac arteries, were completely occluded with old thrombi, and the gangrene was correspondingly extensive. The clots in the popliteal and common femoral, however, were the oldest. This circumstance shows that the coagulation began in relaxed portions of the artery, at the bend of the knee and the fold of the groin. The femoral vein also was occupied by a reddish coagulum. The viscera were healthy.

The autopsy afforded no evidence that the coats of the thrombosed arteries were inflamed. They did not exhibit inflammatory reddening, nor inflammatory thickening, nor inflammatory softening. Indeed, it is expressly stated that "in the middle of the thigh the femoral artery was contracted, but in other respects had a normal appearance." The contracted appearance of the femoral artery was probably due to the absence

of vascular tension which followed the blocking up of its canal at the groin and knee; for, when this occurred, the middle part of the vessel became, as it were, cut off from the general circulation. The autopsy in this case clearly showed that the causation of the thrombosis could not be ascribed to arteritis.

Concerning this variety of arterial thrombosis we can give the following general description. It is most frequently met with in the aged, but is not confined to that class of persons as the case which we have just related abundantly shows. It is characterized by the occurrence of gangrene at once over a large part of an extremity; for example, over the foot and leg as high as the calf or the knee. This takes place as follows: In the chief artery, say the femoral, at the flexure of the groin, or in the hollow of the knee, a firm clot forms out of the blood, and adheres to the wall of the vessel by rough prominences on the internal coat, due to precedent atheromatous disease, or else forms in sac-like dilatations of the artery, and gradually grows by apposition of new fibrin, so as not only to fill the calibre of the artery, but to plug up the whole peripheral end of the vessel, and even a portion of the central end, with fibrinous clot. The consequence of this stoppage of the main artery by a thrombus forming on its wall, which gradually arrests the collateral circulation also, is usually gangrene of the whole foot and part of the leg. (*Billroth.*) This gangrene is dry or moist, according to the rapidity with which the clot has been developed, and according to whether the corresponding veins are occluded with coagula or not. Sometimes it is possible to trace the growth of the thrombus by the spread of the gangrene, as it was in the case which we have just related.

We shall now proceed to describe a *third* variety of arterial thrombosis, which also possesses a good deal of importance. In this variety the obstruction of the circulation begins with the lodgment of an embolus, which has been brought in the blood-stream from some more or less distant part. Around this obstacle the blood coagulates until the canal of the embolized artery becomes completely filled up; and, by extension of the coagulating process, the collateral channels likewise become occluded with blood-clots. Then gangrene of the parts which depend upon the occluded vessels for their blood-supply, ensues. This variety is sometimes called *secondary arterial thrombosis*. The following case related by Romberg affords a good illustration of it. This case also possesses great importance in other particulars.

*CASE IV. Cardiac disease; secondary thrombosis (from embolism) occurred at different times in the popliteal, femoral, and iliac arteries of both sides, in the left brachial, and probably in some of the cerebral arteries; attack came on suddenly with great cerebral disturbance and hemiplegia of left side, etc.; gangrene of both feet and legs supervened; death; autopsy; arteries above-mentioned obstructed with embolia and coagula; secondary arteritis; hypertrophy and mitral disease of heart.—A merchant, aged 29, who generally enjoyed*

good health, after an indisposition of a few days, suddenly, in the night of *October 20, 1844.* complained of a burning sensation in the lower extremities, which rose upwards to the head, where it was converted into an overpowering sensation of hissing and boiling; he was almost deprived of consciousness, but he was just able to call for assistance. A physician was brought, who found him with a livid, bloated countenance, and speechless; the left side was almost powerless, the head confused, and the pulse low; on being raised the patient vomited. A venesection was made, and antiphlogistic treatment adopted. Speech returned on the evening of *October 21st*; only a trifling pain in the head remained, which was increased by movement. On the following days the pulse was accelerated, the skin hot and dry. He complained of formication in the fingers and sleeplessness. *Nov. 1.* A rigour, followed by heat and perspiration, supervened; and this returned, at irregular intervals, once or twice daily, and also at night. *Nov. 4.* The right foot presented a sense of numbness, which passed off after a few hours under the application of dry friction, but returned on the following day, extending to the middle of the calf, and being associated with coldness, anaesthesia, and difficulty and pain in movement. Dull pains also occurred spontaneously in the deeper-seated parts of the limb. *Nov. 12.* The warmth and sensibility of the limb were gradually restored, but the foot was dragged in walking; the fever continued and the powers were reduced. The patient now also complained of a sense of tension in the left foot, and of a deep-seated, dull pain, which was increased by pressure upon the internal surface of the thigh, and, on the 14th, became very violent. The rigours had left him for a few days, but the fever had risen; sleep was altogether in abeyance, and gave place to delirium. The urine often passed off involuntarily, although the patient felt a desire to micturate. On the succeeding days, violent palpitations of the heart supervened.

*Nov. 28.* Prof. Romberg was called in consultation. Then the left foot and leg were considerably oedematous; pressure of the finger upon the dorsum of this foot left indentations of a bluish-red colour. Extensive dark sanguillation was found on external side of calf. Skin on sole of foot dark yellow in colour, and, towards the toes, thrown into thick folds, as we find it in Asiatic cholera. The temperature was much reduced to above the knee. Sensibility was gone, and Romberg inserted a needle to considerable depth without the patient perceiving it, and without discharging a drop of blood. The leg was paralyzed, and it was only after repeated requests that the patient bent the large and adjoining toes; and, by moving the thigh, slightly rotated the whole extremity. The normal colour and temperature commenced above the knee. No pulsation was to be felt in the popliteal and femoral artery of this (left) limb; pressure upon the latter, just below Poupart's ligament, excited violent pain. With the stethoscope Romberg heard pulsation above the navel, but none below. The pulse was also imperceptible in the left radial artery. The motor power of this hand and arm were impaired; the patient himself complained of weakness in this limb, but no deviation in its sensibility and temperature were observed. The pulsation of the left carotid was less than that of the right.

The right leg, which was bent at the knee, presented a moderate warmth. Its sensibility was very obtuse, so that the patient was unconscious of contact unless he saw it. Its motility was impaired, though not to such an extent as in the left foot. The femoral artery pulsated; at the popliteal, pulsation was not to be discerned.

The heart's impulse was accelerated and strong; a distinct vibration was communicated to the hand. The first sound of the heart was marked by a loud bellows murmur, which was synchronous with the pulse. The pulse was 120, and compressible; the skin dry and warm; respiration somewhat accelerated, without a sense of dyspnoea; the tongue moist, thirst moderate, the face sunken and pale, the lips especially so; the urine often passing off involuntarily. Consciousness proved unembarrassed in conversation, but the patient had no perception of his disease; on the contrary, he enjoyed a certain euphoria, and fell into pleasing deliria as soon as he was left to himself. Romberg advised that a reducing plan of treatment should no longer be employed; he also advised

the application of aromatic fomentations to the lower extremities, friction with gray ointment to the thighs, and the exhibition of broth and wine.

During the next four days the symptoms of mortification gradually became more marked in both lower extremities; his delirium deepened, and his strength declined. *Dec. 3.* The superficial veins of left limb are felt like broad cords, passing equally through the ecchymosed portions: the œdema is less and softer. The femoral artery feels like a hard cord, and is tender when touched. *Dec. 5.* Gangrene rapidly spreading in both limbs, being of the moist variety in the left limb, and dry in the right. Stupor ensued, and at 4 A.M. on the 6th, he died.

*Autopsy*, by Prof. Froriep, thirty hours after death. Pleural cavities contained a small quantity of a reddish-coloured serum. Both lungs perfectly healthy, excepting cadaveric stasis in the lower lobes. Pericardium much distended, and filled with five or six ounces of fluid. Heart enlarged, and left ventricle hypertrophied. A pale-red firm coagulum was found in the right ventricle; a larger coagulum was found in the left, and it contained more cruror. A rounded excrescence of a yellowish colour lay between the two flaps of the mitral valve, attached to the upper one, and an inch and a half in length, and almost blocking up the auriculo-ventricular orifices. The aortic valves and the inner surface of the ventricle were normal. In the arch of the aorta there were small cartilaginous indurations; there were some also along the thoracic aorta, causing prominent longitudinal striae upon the internal coat.

Stomach and intestines much distended by gaseous contents. In the tissue of the spleen, beneath the peritoneal investment, there were three plastic exudations of a whitish colour and of trifling extent.

In the abdominal aorta there was, close to its division into the common iliacs, a firm pale-red coagulum, which completely closed up the artery, and adhered firmly to the inner coat, which was smooth and pale. The plug was continued into the two iliacs, and terminated in a fine conical point. Where the left internal iliac passes off a similar formation was found, of the same density but of a lighter colour. The left external iliac was blocked up with a thinner clot containing much cruror, up to the point at which it passes under Poupart's ligament; it was easily detached from the lining membrane, which itself was thickened, reddened, pultaceous, and could easily be separated from the middle coat. The middle and external tunics were also thicker and more lacerable than they are in the normal condition. There was plastic exudation between the coats, which could easily be perceived in the tissue surrounding the arteries. The latter was strongly inflamed below Poupart's ligament, and the lymphatic glands of this region were much swollen and reddened. At the point where the profunda femoris is given off, there was a firm plug, which could only with difficulty be separated from the dark-red inner membrane; a prolongation of this clot extended into the profunda, so that the coagulum resembled a tooth with two fangs. The further course of the femoral was filled with a thinner coagulum, containing more cruror, and its internal coat was villous, rough, and much reddened. Lower down it was free; but at the point where it passes through the adductor magnus, it was again firmly closed by a pale plug, the inner coat being much reddened, pulpy, and swollen.

The vena saphena of the left thigh was narrow and contracted, and its lining membrane pale and corrugated. A trifling exudation of lymph was effused into the cellular tissue surrounding it, which was much inflamed. The crural and common iliac veins were normal.

The left brachial artery was obstructed by a firm pale-red plug, immediately above its division into the radial and ulnar, which closely adhered to the inner coat, and extended about half an inch into each branch. These were narrow, and their inner coat was somewhat rough and reddened. The radial contained no coagulum in the rest of its course. The left subclavian and carotid arteries were normal.

Forty-eight hours after the post-mortem Prof. Müller made a more minute examination of the heart and arteries.

The tumour found at the mitral valve exhibited a fibrous structure on section, and proved under the microscope to be made up of fibres of cellular tissue. It was seated beneath the endocardium, which extended from the auricle over the

tumour into the ventricle. The yellowish-white coagulum in the lower portion of the crural artery was impregnated with a fluid of the same colour, in which the microscope showed numerous corpuscles, that, however, did not correspond to pus globules. The arterial conglutinates were covered by a thin layer of plastic lymph, which in many parts also invested the inner coat of the arteries. This arterial tunic had become darker since the autopsy; it was extensively detached from the middle coat, and in some parts a distinct layer of lymph was found between them. (*Romberg's Manual of the Nervous Diseases of Man*, pp. 238-245, Sydenham Soc. Translation.)

*Comments.*—This case possesses very great value on account of the light which it sheds upon the subject matter of this essay. Besides, three renowned professors in the University of Berlin, Romberg, Froriep, and Müller, were engaged in its elucidation. The foregoing account of it has been prepared by condensing the original narrative as much as could well be done without seriously impairing its value.

It is, however, to be regretted that the cerebral arteries were not examined at the autopsy, for several symptoms, such as the hissing and boiling noises in the patient's head, the temporary loss of consciousness, and of power in his left side, etc., indicate that they were involved at the commencement of the disease; "while the delirium occurring during its course, the absence of subjective symptoms to be expected where there was so much impediment to the circulation in the heart, the trifling character of the pain, and the entire misconception on the part of the patient of the nature of his malady, show that the brain was in an abnormal condition."

Romberg also remarks: "The coexistence of the disease in the central organ of the circulation and in several arteries is an essential feature. Still, the existence of advanced organization in the deposit on the mitral valve appears to prove that it originated in the heart." . . . . "I do not venture to determine," he continues, "the relation which existed between the endocarditis of the mitral valve and the inflammation of the crural artery, which took place on the fifteenth day in the right, and subsequently in the left leg; it certainly was not by continuity of the inflammatory process, and its extension from the left ventricle; the healthy state of the thoracic and abdominal aorta, is opposed to this view. Did a similar process," he asks, "obtain to that occurring in phlebitis [venous thrombosis] ? Might there have been a detachment and propulsion of portions of the exudation matter deposited in the heart, which, being arrested in some of the arterial channels, acted like foreign bodies, and excited coagulation of the blood and inflammation." (*Ibid.* pp. 245, 246.) That which Romberg hesitated to assert, twenty-five years ago, later investigations have enabled us to declare with certainty. The products of endocarditis, in this case, were washed off from the cardiac valves by the blood-stream and carried into the arteries of the extremities, where they lodged and induced the occurrence of secondary thrombosis in the way already described. They also induced the occurrence of secondary arteritis, the consequences of which were very well shown at the autopsy. Indeed,

the presence of thrombi in the arterial canals may, under favorable circumstances, excite an inflammation in the arterial tunics as readily as the presence of blood-clots in the connective tissue may, under similar circumstances, excite an inflammation in that structure. In both situations the coagula act as foreign bodies.

Embolism of the arteries of the extremities, however, derives most of its importance from the fact that it induces secondary thrombosis. If, in cases where embolia lodge in these arteries, the blood did not coagulate around them so as to fill up the arterial canal, and if these coagula did not by extending themselves block up the collateral channels also, then the limb would generally be saved from gangrene by the establishment of a collateral circulation. Cruveilhier's experiments, to which we have already referred, clearly showed a complete occlusion, not only of an arterial trunk, but likewise of its ramifications (restraining all afflux of blood, whether direct or collateral, to the affected part), to be indispensable to the establishment of gangrene. When embolism occurs in the arteries of the extremities, just such a supplementary occlusion is brought about by the secondary thrombosis which it induces.

In describing the clinical relations of thrombosis of the arteries of the extremities, we must next mention the several diseases in connection with which it has been found to occur. They are several in number; and, as far as practicable, we shall present examples illustrating each of them.

1. *Puerperal Gangrene*.—In a very large proportion of the cases where gangrene of the extremities occurs in the persons of lying-in women arterial thrombosis plays a very important part in its production. It may be safely stated, in a general way, that, excepting traumatic lesions, arterial thrombosis constitutes the proximate cause of puerperal gangrene in nearly every instance. Dr. Barnes has related a case in point which occurred in the wife of a surgeon, aged 31. Twelve days after delivery it was noticed that pulsation had ceased in the right posterior tibial artery. On the next day she complained of having most excruciating pain in the ankle and calf of the same leg. Early on the following morning her leg between the calf and ankle was found to be in a state of gangrene, and seven hours afterwards she died. Dr. Barnes says: "No post-mortem examination was made, but the history of this painfully interesting case can leave little doubt as to the cause of the fatal issue. A coagulum had obstructed the right external iliac or the femoral artery. Mortification had ensued as effectually and as rapidly as if the artery had been ligatured." (*Obstetrical Transac.*, vol. iv. pp. 31-33.)

Dr. Barnes also collected fifteen cognate cases, which he arranged in tabular form and presented in the same communication to the *Obstetrical*

Society of London. In some of them the vascular occlusion was effected by *primary arterial thrombosis*, as, for example, in the following instance:—

“A primipara had a protracted labour; two weeks afterwards admitted to the Edinburgh Infirmary with pain and acute gangrene of both legs; death in three or four days.”

*Autopsy*.—“No disease of heart. An inch and a half above bifurcation of aorta, a fibrinous plug completely occluded artery. It was prolonged along common iliacs and left internal iliac. Mass firmly adherent to walls of aorta, which were thickened. Inferior extremities of both plugs in external iliacs did not terminate abruptly, but were continued as a lymphy layer over arterial wall for an inch. Below, the arteries were healthy. Veins healthy.” (*Ibid.* p. 37.)

In other cases the vascular occlusion appears to have been commenced by the lodgment of an embolus brought from the chambers of the left heart or from some other part of the arterial system. Then *secondary arterial thrombosis* has supervened and produced extensive occlusion of the embolized artery with gangrene of the corresponding parts. In puerperal subjects thrombosis of the arteries of the extremities is frequently, perhaps generally, accompanied by thrombosis of the corresponding veins. In this class of subjects arterial thrombosis generally occurs only in the lower extremity. It is, however, occasionally met with in the upper extremity, and sometimes in the arteries of the brain. The remarkable tendency to coagulate which the blood of puerperal women exhibits should doubtless be rated very high among the causes of puerperal thrombosis.

2. *Rheumatic Gangrene*.—Acute rheumatism tends to produce arterial thrombosis in two distinct ways: first, by occasioning an alteration in the composition of the blood whereby the quantity of fibrin contained in it is considerably increased, and the coagulability of it is greatly augmented; and second, by inducing an inflamed state of the endocardium, so that embolia can be washed off from it by the blood-stream and carried into the arteries of the extremities where they may cause a secondary thrombosis with all its destructive consequences, just as they did in Case IV., although that was not an instance of acute rheumatism. The cardiac embolia in that case, however, induced the occurrence of secondary arterial thrombosis and gangrene in precisely the same way as they would have done if they had originated in an attack of rheumatic endocarditis. The following is an example of so-called rheumatic gangrene: A young man, aged 23, had a severe attack of acute rheumatism, accompanied with pericarditis, much effusion, and much embarrassment of the circulation. Gangrene of the foot ensued, for which he was treated in St. Bartholomew's Hospital in 1857. The mortified part separated, and the stump of the foot healed; but the patient suffered so much from the imperfect nature of the cicatrix, that he again presented himself for admission, being desirous of having the foot removed by amputation, which operation was accordingly performed. (*Holmes's System of Surgery*, vol. i. p. 171, 2d ed.)

The next observation is important, and may with propriety be presented in this connection.

MÖLLER (*Berl. Klin. Woch.*, 1869, 134) gives an account of a case of so-called peliosis, or purpura rheumatica, which clearly establishes the connection of this disorder with arterial thrombosis and embolism. It occurred in a man, aged 46, who had suffered from acute articular rheumatism in the early part of 1868. In the spring, a short systolic blowing murmur was heard over the origin of the aorta, without any disturbance of function, or enlargement of the heart. About the same time small hemorrhagic spots appeared, off and on, with sudden increase of pain, on different parts of the skin of the extremities. Towards the end of the summer these appearances became more frequent, and extended to the deeper-lying parts; on the hands and feet, especially, were developed very suddenly hot, very painful, more or less red, circumscribed swellings, in the centre of which could be felt a hard, hemorrhagic knot, which, from its superficial position, shone with a bluish colour through. In October, the right hand was attacked with paresis, and painful dulness of feeling; the pulse had disappeared in the radial, and was almost gone in the ulnar artery; 1"-2" below the aponeurosis of the biceps could be felt, deeply, a cord-like, very sensitive tumour. On Dec. 8, without any warning, the patient was attacked with headache, delirium, and coma, and died in a few hours.

The right arm only was examined, post-mortem, though Möller considers the fatal result due to embolism of a cerebral artery. The brachial artery, just above its bifurcation, was converted into a solid cord, firmly blended with the surrounding connective tissue, in which were visible the remains of hæmatoid crystals. (*New Sydenham Soc. Retrospect*, 1869-1870, pp. 99, 100.)

*Comments.*—It is probable that in this case the attack of acute articular rheumatism which occurred in the forepart of 1868 was attended with endocarditis of the left ventricle, especially about the root of the aorta; that subsequently small clots of fibrin were, from time to time, washed off from the endocardium by the blood-stream, and, being carried into the subcutaneous arterial twigs where they lodged, produced secondary thrombosis and hemorrhagic infarctions in those situations, analogous to those infarctions which not unfrequently occur in the superficies of the lungs, in cases of embolism of the pulmonary artery; that in October the right brachial artery became plugged with an embolus, around and beyond which a secondary thrombus was formed in the stagnant blood; and that on Dec. 8 the patient was suddenly stricken down with cerebral embolism, of which, in a few hours, he died. In all these various attacks of embolism and secondary thrombosis, the embolia appear to have proceeded from the left ventricle of the heart, and to have originated in the local products of the rheumatic endocarditis.

It is interesting to note that the occlusion of the brachial artery with coagula was attended with paresis, and a painfully dull sensation in the right hand; that the establishment of a collateral circulation prevented the occurrence of gangrene in this part; that the occluding clots excited inflammation in the coats of the brachial artery, which was denoted by tumefaction, extreme sensitiveness under pressure, and by the development of new connective tissue; and that at the autopsy the affected portion of the artery was found converted into a solid cord, containing the remains of

hæmatoid crystals, and firmly blended with the surrounding connective tissue.

3. *Ulcerative Endocarditis*.—When this disorder occurs there is always very great danger that secondary thrombosis will be produced in the arteries of the extremities, together with gangrene of the parts which derive their blood-supply from the occluded vessels. The following case, which was originally related by Hodgson, affords a fair example of the relation that exists between this affection and arterial thrombosis of the extremities.

*CASE V. Ulcerative Endocarditis, with typhoid symptoms; circulation of blood in arteries of right leg arrested; death; autopsy; besides the cardiac lesions, thrombosis of the right femoral and profunda artery was found.*—A young man, aged about 18, six weeks before death was afflicted with violent headache and constant vomiting. His pulse was unusually strong and hard, and a quick vibrating pulsation was observed on left side of abdomen. The right leg was cold, and no pulsation could be discovered in its arteries. The action of the heart, also, was occasionally very indistinct. He was extremely feeble, his tongue and lips were covered with sordes, and he died like one destroyed by typhus fever.

*Autopsy.*—Heart natural in size, with cavities of the usual proportions, and a healthy muscular structure. Two semilunar valves of the aorta, however, were lacerated, and from their edges sprouted numerous wart-like excrescences. Immediately below these valves was an extensive ulcer which penetrated deeply into the walls of the left ventricle, at the root of the aorta. A small quantity of pus was found beneath the edges of this ulcer. The internal coat of the aorta was marked with numerous white specks. The right femoral artery, together with the profunda, at the origin of the latter, was filled with a firm white substance, similar in structure to that of the excrescences on the aortic valves. This substance adhered firmly to the sides of the vessel, which were healthy in that situation, but the cavity of the femoral, and likewise of the profunda artery, was obliterated by it. (*Hodgson on the Diseases of Arteries, etc., pp. 18, 19. London, 1815.*)

*Comments.*—Hodgson calls the substance with which the right femoral and profunda arteries were occluded in this case, a “fungous growth;” but in all probability it consisted mainly of a decolorized thrombus, or fibrinous coagulum, and did not belong at all to the category of morbid growths. Moreover, the white substance which our predecessors occasionally found adhering to the lining membrane of arteries thought to be inflamed, and which they supposed to be “effused lymph,” doubtless consisted only of coagulated fibrin which had been deposited from the blood itself upon the roughened surface of that membrane. This, in all probability, obtained in the solitary case of arteritis that is related by Hodgson. He says, “The effused lymph was very intimately connected with the internal coat of the vessel [the thoracic aorta], and a plug of it had extended into the left subclavian artery, and nearly obliterated the cavity of that vessel.” (*Ibid.*, p. 5.) In that case the coagulum or thrombus appears to have been prolonged until it reached some distance into the left subclavian artery. This result, which Hodgson considers to have been produced by the exudation of fibrin from the living membrane of the aortic arch, in

consequence of its being the seat of an adhesive inflammation, was in reality due to thrombosis.

It is probable that the obturating process, in the case related above, began with the lodgment of cardiac embolia in the common femoral artery. Afterwards, all the blood which stagnated in its vicinity coagulated, and thus by secondary thrombosis the canal of the femoral and profunda arteries became completely filled up or obliterated.

4. *Asiatic cholera* sometimes lays the foundation for the occurrence of arterial thrombosis and gangrene of the extremities. The following case is in point.

*CASE VI. Thrombosis, probably secondary, of iliac, femoral, and hypogastric arteries, following cholera; gangrene of the corresponding limbs; death; autopsy.*—Dr. Bourdon has related (*l'Union Médicale*, i., 1867, p. 250) the following case: The patient was a dressmaker, aged 22, who had led a rather fast life, but had never been ill until recently, when she was seized with cholera while in the country. Anxious to return home, she travelled a long distance, and that night was extremely breathless and coughed much, for after the cholera she had been attacked with some disorder of the lungs. Next day she was in much the same state, but the day following she was seized with coldness and extreme pain in the lower limbs, resembling that of cholera. They rubbed her legs, but these were flaccid, immovable, and insensible to friction. Next night she was much the same, only she perspired abundantly. The left leg was colder than the right, but she no longer complained of either. The right limb could hardly be moved, but it was quite warm, and the beats of the popliteal could be felt. Then gangrenous spots were discovered on its inner aspect. The left limb was movable only by the pelvic muscles; it was deadly cold, and of a violet colour; but there was no smell and no phlyctenæ. The arterial beats could not be felt. She sank on the morning of the 9th, having entered hospital on the 7th.

At the *autopsy*, the mitral valve was found lined with warty vegetations, in some parts connected by strings of fibrin, and having fibrinous clots adhering to them, one of which extended into the aorta. One of the aortic valves also was covered with fibrin. Some vegetations, too, existed on the right side of the heart, and clots adhered to them likewise. The right iliac (common) was completely obstructed by a clot (thrombus) which extended into the hypogastric and external iliac. The central parts of this clot were apparently old. The left iliac artery was clear in its upper part; but the hypogastric contained a clot, as also the superficial femoral and the lower portion of the iliac. The other parts of the body were healthy. (*New Sydenham Soc. Retrospect.* 1867-8, pp. 144, 145.)

*Comments.*—This patient passed through an attack of cholera, and in consequence thereof her blood acquired an abnormal tendency to coagulate, that is, she became particularly disposed to the occurrence of thrombosis. She also had warty excrescences on the mitral valve of the heart, and in connection with them cardiac thrombi were formed, some of which were exposed to view by the post-mortem examination. It is probable that one or more of these soft coagula were swept away from the left ventricle by the blood-stream, and, being carried into the common iliac artery of the right side, lodged there. This embolus obstructed the blood-flow and caused more or less stagnation in the common, internal, and external iliac arteries of that side. Secondary thrombosis then occurred in those vessels.

The newly-formed coagulum obstructed completely the common iliac and extended likewise into the external and internal iliacs. The central part of this clot was found to present an old appearance at the autopsy just as it would be likely to do if it had originally been brought from the left ventricle of the heart. Thrombosis also occurred in the lower part of the common iliac artery of the left side; likewise in the internal and external iliacs, together with the common and superficial femorals of the same side.

These thromboses induced gangrene of both lower extremities by cutting off or seriously diminishing the blood supply of those parts. The gangrene, however, was much more extensive in the left limb than in the right, and this circumstance shows that the occlusion of the cruro-inguinal arteries with blood-clot (thrombus) was much more complete on the left than on the right side. The gangrene soon induced septicæmia, and the septicæmia in turn quickly occasioned death.

5. *Pleuro-pneumonia* may give rise to embolism and secondary thrombosis of the arteries of the lower extremity, with gangrene of corresponding extent, as it did in the following instance:—

CASE VII. *Embolism and secondary thrombosis of popliteal artery following pleuro-pneumonia; gangrene; amputation of the thigh; recovery.*—A. B. admitted to the Royal Naval Hospital, Yokohama, Japan, October 3, 1867. It appeared that, on September 24<sup>th</sup>, he was attacked with inflammation of the right lung, that on October 1<sup>st</sup> he complained of severe pain in the left leg, and that a small firm tumour was discovered in the popliteal space obstructing the circulation. On admission his countenance was anxious, and indicative of suffering; breathing hurried and oppressed. Never had rheumatism. Appeared in very indifferent condition, and had evidently lost much flesh. Pulse 100, small; tongue coated; bowels regular; skin hot. There is considerable bulging of the right side with other signs of pleuritic effusion; also consolidation of lower lobe of right lung. Complains of intense pain in the left leg, nausea, cough, inability to sleep, thirst, and want of appetite. Heart's action normal, sounds healthy. Has no feeling in left leg below knee, and the part is cold and shrivelled. Toes have a dark sloughy appearance. There is a firm tumour, as mentioned above, completely obstructing the circulation below, and the impulse in the femoral artery is considerably less than in that of the other extremity.

On October 6<sup>th</sup> the leg was black and sphacelated; a line of demarcation had formed immediately below the knee-joint; chloroform was administered and the thigh amputated about the junction of the middle with the upper third. There was no bleeding from the large vessels, and before applying ligatures a long clot was drawn out of each. He recovered and left the hospital for England, April 14, 1868, in perfect health. (*Lancet*, 1868, vol. 2 p. 390.)

In this connection the following case may be found to possess some interest:—

“A man, aged 54, was admitted into St. Bartholomew's Hospital, February 22, 1839, with mortification of the third and fourth toes of right foot; œdema of both legs; cough and expectoration of mucus tinged with blood. The countenance was of bluish aspect, as if there were obstruction in some part of the circulation. The extremities were cold, and the pulse feeble and at times scarcely perceptible. The man died the following day, and his body was removed without examination.” (*Holmes's System of Surgery*, vol. i. p. 171, 2d ed.)

MR. WILKIN has related a very interesting case of embolism, and perhaps secondary thrombosis, involving the left brachial artery, and occurring during convalescence from *measles*, in the *Lancet* for 1868, vol. ii. p. 599 :—

The subject was a lady, aged 52, of delicate fibre, and the mother of twelve children, with a family history of gout on both sides, and for some years occasionally subject to slight fainting fits; otherwise healthy. On March 18, 1867, she had a sharp attack of measles, coupled with an unusual amount of bronchitis and catarrhal symptoms. A loud systolic murmur was heard all over the cardiac region. She did well, however; and on the 25th, being quite convalescent, took a warm bath, in which she remained about three minutes. After completing a hasty toilet and walking into the next room, she suddenly experienced the most acute pain in her left arm, extending from above the elbow to the wrist, became very faint and giddy, vomited several times, and "felt very bilious and unable to talk." Mr. W. ordered stimulants with perfect rest, and saw her again in the evening, when he found the left arm pulseless, and much cooler than the right, and diagnosed embolism of the brachial artery at its bifurcation. She was placed in bed and the arm incased in cotton-wool. She complained much of vertigo; but slept soundly during the night. On the following morning the limb was quite blanched, almost cold, and somewhat shrunk. Dr. Walshe saw the case in consultation, and corroborated the diagnosis. An anodyne liniment was prescribed for the very severe pain felt in the hand and arm, and ammonia and potash were given internally as solvents of any coagulated fibrin that might be in the blood. Fortunately, the vitality of the limb was preserved through the anastomosing branches. The progress was satisfactory until April 13th, when the gout showed itself in the same hand, and resisted for a time every effort to dislodge it. However, on May 7th, she was much improved, and could use the hand a little. The arm was still pulseless, but of its natural size and temperature. She went to the continent, and remained there six months, during which time she lost all the nails of the affected hand. On her return the pulse could be felt in the wrist, but it was not so full as in the right one. Much of the former strength and usefulness of the limb had, however, been regained.

6. *Typhus*, and other forms of *continued fever*, are sometimes succeeded by arterial thrombosis and gangrene of the extremities.

MR. BATHO records a case of *arterial thrombosis and gangrene following continued fever*, which occurred in the person of a soldier, aged 27, of pale and thin appearance, and temperate habits. He had been admitted into hospital several times for syphilis, but had never had any serious or acute disease. His left leg became gangrenous, and no pulsation could be felt in the anterior and posterior tibial arteries, whilst the common and superficial femoral arteries could easily be felt to beat. Amputation of the thigh was performed, and it was noticed that the popliteal artery was partially occluded by thrombosis. This patient's symptoms, when first seen, differed in no perceptible respect from those of common continued fever, and consequently his disease was returned as such. Twelve days later, however, the occurrence of arterial thrombosis was diagnosed, and the subsequent progress of the case verified this opinion. It was thought that the obstruction-symptoms did not depend upon embolism, for there was no heart-disease; but, upon local stasis and coagulation of the blood in the arteries of the legs, resulting in part from a most feeble heart-action, and in part from an abnormal condition of the blood itself. Both legs were affected, and for a time in a condition resembling that produced by frost-bite, but the right one ultimately recovered. In the left leg there was also a nodulated condition of the lymphatics of the calf, such as is met with in frost-bite. That such a train of symptoms should have occurred in a semi-tropical climate (Cape of Good Hope), and in a very hot season, is remarkable. It is obvious that exposure to cold had no part in its causation. The patient

recovered well and completely after the operation. (*Lancet*, 1870, vol. i. pp. 113, 114; also, *New Sydenham Soc. Retrospect*, 1869-1870, pp. 327, 328.)

Dr. MURCHISON has reported a very instructive case of embolism and secondary thrombosis of the iliac, femoral, and other arteries, with primary thrombosis of the femoral veins, occurring in a woman, aged 45, affected with typhus fever, who exhibited œdema and gangrene of the lower extremities for some considerable time before death. (*Transact. Pathol. Soc. London*, vol. xvi., 1865, pp. 93-95.)

This case is entitled embolism of the iliac, femoral, and other arteries, and thrombosis of the femoral and popliteal veins, etc.; but judging from the published description it appears to have, in reality, been an instance of arterial as well as venous thrombosis. The arteries involved were the last two inches of the aorta, the common and external iliacs of both sides, the left internal iliac, the left common and superficial femoral, the right common femoral for an inch and a half, and the right renal artery. The bare statement of the extent to which the arteries were occluded is sufficient to show that something more than embolism was engaged in the occluding process.

We must here remark, that the œdematosus tumefaction of a persistent character which is not unfrequently, and the gangrene which is occasionally, met with in the lower extremities, as sequelæ of typho-malarial, typhoid, and typhus fever, are generally due to occlusion of the vessels belonging to the affected part with coagulated blood. Occlusion of the veins produces œdematosus swelling, occlusion of the arteries, gangrene, and of both combined, wet gangrene. These accidents sometimes occur in the upper as well as in the lower extremities of fever patients.

7. *Constitutional syphilis* is occasionally attended with thrombosis of the arteries of the extremities. In Mr. Batho's case related above, it is possible that the thrombosis of the popliteal artery was due to syphilis instead of continued fever, for this patient had several times been under treatment for the first-named disease. When we come to speak on thrombosis of the cerebral arteries, we shall relate or refer to a considerable number of cases in which the thrombosis had, in all probability, a syphilitic origin; and we infer that, if there is such a disorder as syphilitic thrombosis of the arteries of the brain, there is also such a disorder as syphilitic thrombosis of the arteries of the extremities. It is not improbable that the following case belongs to the last-named category:—

Dr. HEWITT, at a meeting of the N. Y. Pathological Society, March 13, 1872, presented a specimen of gangrene of the foot, removed by amputation from a man, aged 32, who had entered the Charity Hospital six weeks before, suffering from warty vegetations of the glans penis. The operation for phimosis was, after a time, performed, and the warts were

removed. He left the hospital the same day, and walked a great deal while in the city. The result was, that a good deal of inflammation was set up, and he was forced to re-enter the hospital within the succeeding twenty-four hours. This inflammation was followed by extreme fever, characteristic of pyæmia, and the prostration was so great as to threaten immediate death. The administration of large doses of quinia was attended with a good effect. Coincident with this improvement was a cessation of pulsation in the anterior and posterior tibial arteries of right leg. Shortly after this, gangrene of the toes presented itself, and a distinct line of demarcation was formed at the metatarso-phalangeal articulation. In view of the fact that the posterior tibial artery did not beat, that a large portion of skin was discoloured, and that there was a good deal of tenderness and puffiness about the ankle-joint, it was considered prudent, on consultation, to perform Syme's operation ; which was accordingly done by Dr. Fortun, the assistant surgeon. Subsequently, the case did well. The diagnosis was thrombosis of the posterior tibial artery. The patient had frozen his foot five or six years before, and this circumstance may have had something to do with the induction of gangrene. Dr. Hewitt considered Syme's operation preferable to Chopart's and Lisfranc's, in cases such as the above. (*Medical Record*, vol. vii. p. 156.)

*Comments.*—It is not improbable that this man also had constitutional syphilis, and that this disease had something to do with the occurrence of arterial thrombosis and gangrene in his foot. We can readily conceive how constitutional syphilis may induce arterial thrombosis. Lancereaux and others have shown that the arteries of syphilitic subjects are liable to become the seat of a new formation (gummy tumour) deposited in the thickness of their walls. On this point, Lancereaux says: "That there is a connection between this lesion and syphilis is very probable. We are, as it appears to us, the more authorized to admit this connection because the arterial neoplasm does not differ notably, in the cases quoted, from the morphological product by which syphilis manifests itself in the other parts of the body." (*Lancereaux's Treatise on Syphilis*, vol. i. p. 403, New Sydenham Soc. Translation.) Now the presence of gummy tumefaction in the walls of arteries belonging to the lower extremities, or any other part, would naturally cause more or less contraction or narrowing of the arterial canal at the seat of the swelling; and this circumstance would favour the formation of a thrombus in the same situation. This, then, is one way in which constitutional syphilis may tend to induce arterial thrombosis. But it may also tend to induce the formation of thrombi in still another way, namely, by increasing the coagulability of the blood itself, which it does mainly by occasioning cachexia, lymphangitis, adenitis, and leucocythaemia. In all cases such as that related above, it would be well to subject the arteries of the amputated member to a critical examination, in order to ascertain whether the condition of their coats will throw any light upon the etiology of the thrombosis and consecutive gangrene.

8. *Inflammation of the parts surrounding large arteries and veins* may sometimes be attended with thrombosis of these vessels, as seems to have happened in the following instance:—

**CASE VIII.** *Thrombosis of the right subclavian artery and sudden occlusion of the left subclavian from the free extremity of the clot being forced into it by the blood-stream; thrombosis also, with complete occlusion of the veins on the left side of the neck; thrombosis of the right chambers of the heart; encysted empyema; suppuration among muscles at root of neck, etc.*

Dr. S. FLEET SPEIR exhibited a specimen of the above at a meeting of the N. Y. Pathological Society, February 9, 1870, with the following history:—

Mrs. H., aged 41, the mother of three children, was admitted to the Brooklyn City Hospital, in the service of Dr. H. S. Smith, Jan. 13, 1870. About four months before that she was suddenly taken on the street with pain in the region of the heart and shortness of breath; she was carried home, and, in about three weeks, recovered from the severe symptoms; but a considerable amount of dyspnoea always remained, and it was aggravated every three weeks. During most of this time she had to sit up all night on account of the difficulty of breathing. At time of admission she was greatly emaciated. There was dulness at the lower part of the right side of her chest; left side resonant; crepitant râles on right side, and fremitus increased. Pulse 92, weak and intermittent, a beat being lost in every six. She has not menstruated since she was taken sick.

17th. Pulse 100; temperature 98°; there are spots of purpura on some parts of her body, especially the extremities.

31st. There was noticed to-day, for the first time, a swelling of a bluish colour and oedematous character, which extended over the left hand and arm together with the lower part of the left side of her neck. The swelling of the hand and arm commenced at 9 A.M., and at 1 P.M., the tumefaction of the neck was noticed. This swelling everywhere pits on pressure. There is no pulse to be found in the radial, brachial, subclavian, and carotid arteries of the left side.

Feb. 2. The tumefaction of the neck has decreased somewhat, but the swelling of the arm has increased. The patient died to-day from asphyxia.

*Autopsy* by Dr. Speir, about ten hours after death. Sub-arachnoid effusion abundant, and all the ventricles of the brain contain serum; on interior and middle lobes of left hemisphere of cerebrum are two spots of hemorrhage; brain-substance oedematous; cystic degeneration of pineal gland. Between the muscles of anterior part of neck there was a purulent infiltration which extended to a considerable distance on each side of the median line, and low down on the left side of the neck. *All the veins of the left side of the neck were distended with coagulated blood (thrombus).* The veins of the right side were free from clots. The left brachial artery contained a very small thin coagulum about one inch and a half in length, but it did not occlude the vessel. The left subclavian artery did not contain any coagula in its course. *A large thrombus, however, was found in the right subclavian artery, not entirely filling its calibre, but extending into the innominate and aorta; its large extremity passed along the upper part of the aorta, entirely filling up the mouth of the left subclavian, and likewise completely occluding that of the left carotid.* Thus the thrombus, which began on the right side, was prolonged by the current of the blood into the arteries of the left side, and caused a complete arrest of the circulation through them. As already mentioned, the clot on the right side did not entirely occlude the artery. *Masses of broken-down coagulum were found lying loose in the right ventricle of the heart, and also firmly attached to its wall, and imbedded in the meshes of its muscular structure.* The left lung was found to be adherent to the chest in some places, but otherwise

healthy. *The right lung was the seat of encysted empyema.* The thyroid gland was considerably enlarged. The thymus gland was much enlarged, being of the size of an English walnut, flattened a little. From the appearance of the interior of the artery and of the clot in this case, as well as the surrounding purulent infiltration, it was supposed that the formation of the thrombus was due to arteritis. (*Medical Record*, vol. v. p. 39.)

*Comments.*—This woman had had, if I read her case aright, suppurative pleurisy on the right side, and suppurative inflammation among the muscles of her neck, which were followed by the formation of coagulum in the right subclavian and innominate arteries, in the upper part of the aortic arch, and in the mouths of the left subclavian and left carotid arteries, completely occluding both of them. Moreover, all the veins of the left side of the neck also were thrombosed. It was the stopping up of the last-named vessels with blood-clot that caused the œdematosus swelling of the left hand, arm, and left side of neck, the œdematosus condition of the substance of the left hemisphere of the cerebrum, together with the two spots of extravasated blood on the convex surface of this hemisphere.

The arterial thrombosis in this case may have resulted from the extension of the inflammatory process through contiguous parts from the right pleura to the walls of the innominate and right subclavian arteries. Thus they would have become the seat of a secondary arteritis, which in turn might cause the blood to coagulate by roughening the inner surface of the artery, and by discharging migratory leucocytes in great numbers into the blood itself.

9. We have already shown (see the comments on Case IV.) that in cases of arterial thrombosis the coagulum may, under favourable circumstances, by its presence and thus acting as a foreign body, cause the surrounding arterial tunics to become inflamed. Some of the possible consequences of such an arteritis are pretty well shown by the following observations:—

GOODFELLOW has recorded (*Med. Chirurg. Trans.*, vol. xlv.) two cases of extensive obstruction of the arteries of the lower extremities resulting from cardiac embolia and secondary thrombosis, followed by gangrene and death. There was also secondary arteritis that had gone so far as to develop puriform matter and a small abscess in the arterial tunics. Both were women, one rather robust, and aged 30; the other spare and feeble, and aged 17. In the first case the mitral valve was covered with very large vegetations, and the substance of the left heart was extensively infiltrated with a yellowish puriform matter. *The arteries and veins of the lower limbs were obstructed by firm coagula; the arteries as far down as the bifurcation of the popliteal.* At some parts the arteries were imbedded in dense fibrous tissue; at others curdy puriform matter was deposited between the coats, in one spot forming a small abscess. In the second case the anatomical lesions were very similar; but there was also extravasation of blood into the arachnoid cavity, and plugging of some branches of the middle cerebral artery. Goodfellow remarks that where the occlusion was partial or incomplete the arteritis was adhesive in character, and the exudation was susceptible of becoming organized; but where the occlusion was complete the arteritis was more intense, and the exudation was purulent from the outset or soon became so. (*New Sydenham Soc. Year Book*, 1862, pp. 116, 117.)

*Comments.*—These cases related by Goodfellow support Niemeyer's statement that abscesses have actually been established in the walls of arteries in consequence of circumscribed inflammation. The number of such cases on record, however, is but small, and it is for this reason that the writer has presented the above instances to the reader in this place. The most noteworthy points in these cases are, that the main artery of the lower extremities was occluded with cardiac embolia and secondary thrombi, that the embolism and thrombosis caused purulent arteritis with abscess of the arterial walls, that carditis was also present, and that the immediate cause of death was gangrene of the lower extremities.

10. In all the cases wherein thrombosis primarily attacked the large arteries of the extremities, that have been related in the foregoing pages, the subjects have been either youngerly or middle-aged people. Only one was so far advanced as 52, and several of them were quite young. But the aged also are subject to this form of arterial thrombosis, as the following case will clearly show:—

Dr. SANDS presented a leg at a meeting of the New York Pathological Society, May 24th, 1867, on behalf of his colleague, Dr. Gouley. He gave the following description of the case:—

Yesterday afternoon a consultation was held at Bellevue Hospital, on the case of a woman, aged 71, who had been in the hospital about five weeks. A few points in her history were ascertained by the house-surgeon. It appears that about seven weeks ago, she, being then in what she considered good health, was seized with a violent pain in the calf of the left leg. This pain extended down the leg, and continued with considerable severity for several days. On the third day after this attack of pain began, a dark-coloured spot was noticed on the top of the foot, just below the instep. At that time, according to her statement, the toes were not discoloured; the discolouration, however, spread with some rapidity towards the toes, until all of them were implicated: it also extended very gradually over the ankle and up the leg; and it was only ten days ago that the mortification ceased to extend, and that a line of demarcation became apparent. This line of demarcation passed nearly circularly around the leg, and was situated about four inches below the knee-joint. It was suspected that this woman laboured under heart disease, and Dr. Gouley, the attending surgeon, had satisfied himself that there was some disease of the aortic valves. His observation was not verified, however, by any of the gentlemen who examined the patient in consultation.

The question arose as to the propriety of an operation. In regard to it the consultation was not entirely agreed, but the preponderating opinion being in favor of immediate amputation, it was accordingly performed by Dr. Gouley, through the knee-joint. A very curious phenomenon was noticed at the time of operating, namely, no vessel bled enough to require a ligature. The popliteal artery and vein both stood out prominently, and were seen to be filled with a recent dark-red coagulum (thrombus). Other vessels were seen to be plugged in the same way. The plugging occurred at the level of the section made by the amputation, the proof of which was seen in the presence of plugs in the distal extremities of these vessels in the amputated member. This coagulum, in the case of the popliteal artery, extended down it for about an inch and a half; and there, at just about the point where the artery should bifurcate, it was very much distended, apparently by the presence of a globular plug of fibrin having a yellowish-red colour, quite distinct from that belonging

to the dark-red coagulum which occupied the vessel above. The arterial coats were diseased. They contained patches of atheroma, and appeared to be somewhat calcified where the globular plug (embolus) was found. Above this spot the arteries were healthy, and for several inches below, they were pervious, and did not contain coagula. The embolus adhered pretty closely to the inner surface of the popliteal artery. (*Medical Record*, vol. ii. pp. 302, 303.)

*Comments.*—This woman was well advanced in years, her age being 71. The left popliteal artery was the seat of the obstruction. There was atheromatous and calcareous degeneration of the arterial walls, which was more strongly marked at the chief point of obstruction than elsewhere. It is, however, by no means certain that the thrombosis in this case was secondary, or that it had its commencement in the lodgment of an embolus. That which appeared to be a globular-shaped plug of fibrin that had migrated from some remote part of the arterial system may, in reality, have consisted of fibrin which had been deposited upon the roughened surface of the calcified part of the popliteal artery, for this is precisely what is known to have happened in analogous cases; and Billroth considers arterial obstruction occurring in this way, in the limbs of the aged, as a not infrequent cause of gangrene.

11. Thrombosis of the peripheral or systemic arteries is sometimes met with in young children. Klob and Rauchfuss both have recorded autopsies of infants in whom the ductus arteriosus was found occluded with fibrinous thrombi, and arteries, such as the mesenteric and renal, were also found to be the seat of thrombosis. (*Canst. Jahrb.*, vol. iii. pp. 236, 247; also *New Sydenham Soc. Year Book*, 1860, p. 202.) Thus we perceive that no period of life is exempt from the occurrence of thrombosis of the systemic arteries.

Although spontaneous gangrene of the extremities is not exactly the theme of this article, it may serve to prevent the occurrence of some misapprehension if we state that such gangrene may be produced by causes other than arterial thrombosis. These causes are: 1, excessive and long-continued anaemia, with great contraction of the arteries and debility of the heart, such as are sometimes met with in chlorotic females; and 2, permanent spasmodic contraction of the smaller arteries, such as may be produced by eating spurrey-rye. Occlusion of the arteries with coagula, however, is by far the most frequent cause of the so-called spontaneous gangrene of the extremities.

Arterial thrombosis sometimes gives rise to *remarkable forms of ulceration*, instead of gangrene, as it did in the following case related by Mr. John Simon:—

**CASE IX.** *Thrombosis of the arteries arising from the aortic arch; extensive phagedenic ulceration of face; intracranial inflammation; death; autopsy.*—E. P., aged 36, was under observation twenty months in St. Thomas's Hospital, where he died February 9, 1859. During this time he had been sub-

ject to a peculiar phagedenic process, under which he had lost most of the left side of his face. The disease began in the lower eyelid, and soon involved the globe of the eye; it then extended downwards, destroying the soft parts, and exposing the malar, maxillary, and nasal bones, which crumbled away in successive small sequestra; eventually, having opened largely into the nasal and buccal cavities, it attacked the base of the skull, and thus (after many months of extreme suffering) produced death by intracranial inflammation. The destruction did not advance uniformly; it was effected by successive little acts of sloughing, which alternated with feeble efforts of repair, and at every access left the patient with a larger and deeper excavation. There was no infiltration of surrounding textures; nor did the granulations, when they formed, ever tend in the smallest degree to exuberance. The meaning of the disease was not arrived at during life. Before the case came under my care [says Simon] an opinion had been expressed that it was cancerous; but the character of the sore was, I thought, conclusive against this view. The man having undoubtedly suffered syphilis, suspicions were entertained that this taint might be the cause of his local suffering; and various anti-syphilitic drugs were unsuccessfully tried.

On post-mortem examination it appeared certain that the intractable local disease had been a starvation-phenomena resulting from obstruction of arteries. Of the three vessels arising from the arch of the aorta, the left subclavian was completely obliterated by an old firmly adherent plug, nearly an inch in length, the left carotid communicated with the aorta by an aperture only just capable of admitting an ordinary probe, and the origin of the innominate was reduced by encroaching deposit to one-third of its normal calibre. Beyond their points of origin these arteries were of normal size, and contained but little atheroma. The heart was healthy; but the coats of the thoracic aorta, along its whole length, were so loaded with earthy deposit as to crackle under pressure. The brain was everywhere, perhaps, somewhat softer than natural, but with no difference in this respect between its two hemispheres. The lateral ventricles were distended with a turbid purulent fluid; the lining membrane was opaque, and the septum softened almost to diffusile. The base of the brain was coated with a layer of soft yellowish lymph, especially abundant in the middle line and on the under surface of the middle lobe. The dura mater, corresponding to the latter portion of brain, was, for about two inches square, much discoloured, and had its arachnoid surface covered with lymph. The bone beneath it was necrosed to the extent of about a shilling. (*Holmes's System of Surgery*, vol. i. p. 43, 2d ed.)

On this peculiar form of ulceration Simon remarks:—

"It seems probable, too, that the ulceration which is so frequently attendant on varicose veins of the lower extremity, is of somewhat analogous origin; for, in these cases, the local circulation of blood is materially interfered with—not, indeed, as being stinted, but as being rendered stagnant; and tissues which cannot renew their supply of blood are physiologically circumstanced almost as if blood were withheld from them." (*Ibid.*, p. 42.)

It is not improbable that the thrombosis of the arteries given off from the aortic arch, which was attended with such destructive consequences in the above case, was induced by constitutional syphilis or a syphilitic dyscrasia.

Again, thrombosis of the arteries of the extremities sometimes occasions, not gangrene, nor ulceration, but a *low grade of inflammatory action* in the parts whose blood-supply has been diminished, as it did in the following case. On this point Mr. John Simon justly says: "Obliteration, or narrowing of certain arteries—not enough to cause gangrene in

mass, but enough almost entirely to exsanguinate the affected part—may cause chronic inflammatory phenomena." (*Holmes's System of Surgery*, vol. i. p. 42, 2d ed.)

Dr. J. FORSYTH MEIGS has related in the *American Journal of the Medical Sciences* for January, 1869, pp. 31-34, a very instructive case of embolism and secondary arterial thrombosis of this sort resulting from cardiac disease. The arteries involved were the right anterior tibial, the right brachial, and the aorta. The subject was a gentleman aged 52. When Dr. Meigs saw him, on April 20, 1867—

" His chief symptoms . . . were loss of strength and appetite, occasional slight febrile symptoms, and what he supposed to be a rheumatic inflammation of the right foot. On his exposing the foot," says Dr. Meigs, " I was surprised to see an erythematous blush, with a puffy condition of the integuments, and some soreness on pressure, curiously limited so as to form one oblong patch on the instep, just over the course of the anterior tibial artery, and another one, restricted in the same way, over the line of the posterior tibial. These patches might have been two inches long by an inch wide, with irregular edges fading gradually into the healthy skin around." Dr. M. found that no pulsation could be detected in the arteries under the patches, and that the patient also "had severe constrictive and regurgitant disease of the aortic orifice, and a very powerful left ventricle." On May 15, "he was suddenly attacked with tumultuous action of the heart, great dyspnœa, and in a short time thereafter with severe pain in the right arm, followed immediately by coldness and numbness, and total absence of pulsation in the brachial artery from the axilla downwards." In a few days, however, the pain and numbness disappeared with the establishment of a collateral circulation. On May 26 he died, with strongly-marked obstruction-symptoms of the heart.

*Autopsy.*—"A firm embolus was discerned in the right tibial under the annular ligament of his ankle. . . . The right brachial was completely obstructed at its upper part by a firm embolus of an inch in length, and a soft coagulum extended from the obstruction as high as the giving off of the circumflex arteries in the axilla. The left ventricle of the heart was hypertrophied and dilated; the aortic valves were thickened, irregular, and ossified at several points. One of the valves was perforated by a large irregular opening, to all appearance produced by recent ulceration. . . . The ascending aorta was greatly dilated, its coats thickened and degenerated, and it was almost filled up by a recent coagulum." The descending part of the arch was greatly constricted, but it was an old affair, and has not much to do with the subject we are now studying.

*Comments.*—The points of interest which this remarkable case presents to us are, 1. That ulcerative endocarditis supervened upon valvular disease of long standing, and produced extensive destruction with perforation of one of the aortic valves; "the edges of the opening were soft, evidently undergoing disintegration, and the membrane covering the valves, extending for some distance into the heart, as well as upwards into the aorta, was inflamed; a plug of colourless lymph occupied the perforation in the valve, and two or three similar masses were found entangled in the chordæ tendineæ." 2. The ulcerative endocarditis was attended with the following symptoms, viz., loss of strength and appetite, occasional slight febrile symptoms, palpitation, and dyspnœa. 3. The ulcerative endocarditis gave rise to the occlusion of arteries in remote parts of the body with embolia which had been washed out of the heart by the blood-stream. 4. The

embolism of the tibial arteries was followed, not by gangrene, but by a low grade of inflammatory action in the integuments, which was denoted by an erythematous blush, a puffy condition, and some soreness under pressure. 5. The lodgment of an embolus in the right brachial artery caused the blood to coagulate on the proximal side of the plug up to the origin of the circumflex arteries, that is, up to where the nearest branches of considerable size were given off, and thus occasioned secondary thrombosis of the right brachial and axillary arteries. 6. There was also thrombosis of the ascending aorta. The occlusion, however, was not complete, and the coagulum was quite recent. Its formation was obviously connected with the dilated state of the ascending arch, and the congenital narrowness of the descending arch. These conditions strongly favoured stagnation.

In the same article Dr. Meigs relates another very interesting case of peripheral embolism, which occurred in a boy of ten years, during convalescence from scarlet fever, and terminated in recovery; but, as we are not quite sure that secondary arterial thrombosis was also present, this case hardly comes within the scope of the present inquiry.

*Etiology.*—With regard to the agencies which are concerned in the production of thrombosis of the peripheral arteries we may briefly state that they are the following: 1. Increased coagulability on the part of the blood itself. This may be due to hyperinosis, on the one hand, as is seen in parturient females and rheumatic subjects, or to excessive development of the white corpuscular element, on the other, as occurs in the marasmus which is produced by advanced age and wasting disease. 2. Atheromatous and calcareous degeneration of the arterial walls. This lesion promotes the formation of thrombi by impairing the elasticity and contractility of the arterial coats, by narrowing the arterial channels, and by roughening of, or occasioning projections from, the inner surface of arteries. 3. Feeble heart-action. This being present, the blood may stagnate and coagulate in the minute arteries of remote parts of the body, especially when their walls are stiffened by atheromatous degeneration, because the heart is no longer able to drive the blood through them. 4. The lodgment of embolia in the arterial canals. These foreign bodies are apt to cause stasis and consequent coagulation of the blood round about them, whenever they happen to get caught in the peripheral arteries.

The formation of coagula in arteries is also a well-known physiological effect of the laceration by mechanical or other means of their lining membrane. (*Sieveking.*) Finally, contusion of arteries may induce thrombosis and occlusion at the place of injury. As a result of this vascular obliteration infarction, serious visceral degeneration, or gangrene may ensue; according to the size and situation of the occluded artery. Thus, in two cases of injury in the lumbar region, Dr. Moxon found complete thrombosis of the renal arteries, with corresponding degeneration of the kidneys. (*Ashhurst.*)

Inflammation of the coats of arteries, in the ordinary acceptation of the term, however, plays a very insignificant part, so far as we now know, in the production of thrombosis, as we have already intimated.

With regard to primary acute arteritis, I infer from my own experience, both clinical and pathologico-anatomical, that it is a very rare disease. Authors generally agree in stating it to be of very infrequent occurrence. Secondary arteritis, however, is not very uncommon. Still the fact remains conspicuous that the coats of arteries are but little disposed to take on inflammatory action of a high grade. But, rare as primary acute arteritis undoubtedly is, does it exert any influence in the production of thrombosis when it happens to be present? Dupuytren, Cruveilhier, and others have held that when the lining membrane of arteries is inflamed the blood coagulates immediately on coming into contact with it. This view, however, is purely hypothetical and not susceptible of proof. On the contrary, we know from the investigations as to the formation of thrombus after ligation of arteries, and as to the process of healing of injured veins, that there is immediate coagulation of blood in the injured vessel, before there can be any inflammation of the walls of the vessel. Formerly, it was also held that there was a fibrinous coagulation on the inner surface of the inflamed artery or vein, as on an inflamed pleura; it can scarcely be decided whether this really occurs; what was formerly considered as such has been found to be a discoloured peripheral layer of the blood-clot. (*Billroth.*) Arteritis, however, does undoubtedly assist in the production of thrombosis when it produces such a thickening of the arterial walls as leads them to encroach upon the arterial canal, or when it causes the internal surface of the inflamed vessel to become uneven or roughened.

Several instances of this sort, some of which occurred in syphilitic subjects where the arterial thickening was "gummy," and others in persons who were free from syphilitic taint, will be given when we come to speak on thrombosis of the arteries of the brain.

I also sometimes think that, when the coats of arteries are inflamed and wandering cells escape in great numbers into their calibre, these cells may cause the blood to coagulate with great rapidity, but as yet this is mere conjecture.

Concerning arteritis, Mr. C. H. Moore, of the Middlesex Hospital, has recently said: "This is a very rare disease. The most distinct instance of a limited arterial inflammation is that of the umbilical arteries, which after the ligature of the funis are sometimes filled with pus." (*Holmes's System of Surgery*, vol. iii. p. 392, 2d ed.) The same writer also says:—

"The cases formerly described by surgeons as primary inflammation of the arteries appear, by the light of later research, to have been due to the impaction of a plug. Inflammation of an artery, and even suppuration, may then take place, but it is a secondary disease. . . . Upon the cases in which bony portions of artery are found obliterated and converted into fibrous cords, it may suffice to say that no evidence of previous arteritis or of any cause what-

ever can be adduced, and that the same result without obvious inflammation attends the obliteration of the *ductus arteriosus*, and sometimes follows the application of a ligature." (*Ibid.*, p. 392.)

We admit, however, that *chronic* inflammation involving the middle and internal coats of arteries and constituting the incipient stage of atheroma and calcification is one of the *most frequent of diseases*.

In cases where the main artery of one of the extremities is occluded with thrombi, atheromatous or calcareous degeneration of the walls of the collateral channels may assist not a little in the production of gangrene by destroying the expansibility of those channels, and thus rendering them unable to take upon themselves the office of supplying the limb with blood.

Thrombosis occurs much more frequently in the arteries of the lower extremity than it does in the arteries of the upper extremity; 1, because the arteries of the lower extremity are much more liable to suffer from atheromatous and calcareous degeneration; and 2, the arteries of the lower extremity are much further off from the central organ of the circulation than those of the upper extremity.

Cowper and Naish both observed that when they amputated the leg for so-called senile gangrene the vessels of the stump were but little disposed to bleed, because they were, to a great extent, already obliterated.

On this topic also Hodgson has made some important remarks. He says:—

"Arteries, however, are frequently involved in the sloughing of surrounding parts, in which case the blood generally *coagulates* in the vessel to considerable extent above the line of sphacelation. This circumstance prevents the accession of hemorrhage upon the separation of the slough; and the coagula being subsequently absorbed, the vessel contracts, and is ultimately obliterated. The cause of the formation of this coagulum is by no means evident, although it is probable that the condition of the mortified vessel interrupts the passage of the blood through it, and a coagulum is consequently formed extending to the next important collateral branch. Amputation is sometimes performed a little above the line of separation in which it is unnecessary to tie the arteries [because they are occluded by this process]; and parts destroyed by sphacelation generally separate without the occurrence of hemorrhage, the cavities of the vessels being plugged with coagulum." (*Hodgson on the Diseases of Arteries, etc.*, p. 13, London, 1815.)

*Symptoms and Course.*—The phenomena resulting from thrombosis of the arteries of the extremities vary according to the size of the obstructed vessel, and the extent of the coagulum itself. When the minute arteries of the feet are the primary seat of the coagulation, two distinct types are presented. In one of them a brown spot forms upon one toe; it soon becomes black, and gradually spreads until the whole toe becomes completely dry. In favorable cases a line of separation forms at the phalango-metatarsal articulation, the toe falls off, and the stump cicatrizes. But the mummification may go higher and limit itself in the middle of the foot, above the malleoli, in the middle of the leg, or just below the knee. In

another series of cases, however, the disease begins with symptoms of inflammation, œdematosus swelling of the toes, very great pain, and dark bluish-red discolouration, which subsequently becomes black; there are stages of the disease wherein, by the bluish-red and mottled appearance of the skin, we may see that in one place the circulation is carried on with the greatest difficulty, while in another place it has already ceased. This struggle between life and death the French have not inaptly compared to death by asphyxia, and termed *asphyxia locale*. In this form of moist hot gangrene, the disease usually attacks several toes at once, and extends to the foot, till in the course of a few weeks the entire foot, perhaps the leg also, becomes gangrenous; at the same time decomposition soon begins in the œdematosus subcutaneous connective tissue, and the danger of absorption of putrid matter through the lymphatic vessels (septicæmia) is much greater than in the above-mentioned process of mummification. (Billroth.)

The symptoms, however, are quite different when the main artery of the limb is the primary seat of the coagulation. Then the phenomena are much the same as those which are produced by applying a ligature to the same artery. The parts which derive their blood-supply from the obstructed vessel become cold, blanched, and exsanguine, their motility becomes greatly lessened, perhaps destroyed, and their sensibility likewise is much blunted or destroyed, although they may be the seat of intense pain. At the same time no pulsation can be detected in the artery beyond the seat of the thrombus. If the collateral vessels are free from disease and obstruction, a compensatory blood-supply may be drawn through them. If such proves to be the case, after some hours, the coldness, pallor, anaesthesia, paralysis, and other signs of intense local anæmia will begin to disappear, and afterwards gradually pass away. If, on the other hand, no collateral circulation is established, the affected parts will acquire a deadly coldness, an utter insensibility, and a complete paralysis, with a violet color or perhaps a mottled appearance of the skin. In other words, the parts which derive their blood-supply from the occluded arteries will be stricken at once with gangrene. Decomposition will soon set in, and, if no line of demarcation is formed, septicæmia will speedily occur and destroy the patient.

In relation to this variety of arterial thrombosis, Dupuytren says:—

“But the most interesting symptoms to watch are those which take place in the artery. The pulse is imperceptible to the finger, or even entirely ceases. In the course of the artery is felt a hard, round cord; and an accurate estimate may be made of the extent and progress of the disease by the limit of pulsation, and natural feel of the artery. This circumstance was noticed in the case above related [Case III.]; two days before the patient's death, I predicted that the internal iliac artery would be found plugged as high as the aorta. But it is right to bear in mind that the hard, round cord which is felt, in these cases, in the course of the femoral artery, may be the obstructed vein.” (Dupuytren on *Lesions of the Vascular System*, etc., p. 23. Sydenham Soc. Translation.)

This variety of arterial thrombosis is also for the most part attended with great pain of a stinging and burning character and seated in the gangrenous part.

*Treatment.*—Dupuytren relied mainly upon bloodletting and the internal administration of opium. Narrating a case of gangrene of the foot that occurred in the person of an old woman and was attended with excruciating pain, he says:—

“For many months I had recourse to the usual forms of treatment, including bark and opium, administered internally and applied locally; but still the disease extended, involving soft and hard parts alike in its destruction. A careful examination proved the non-existence of any important organic lesion. vexed and disappointed, I determined on trying a different plan of treatment, and in this I was guided by the pulse, which was full and hard, and the face florid. I bled her; the pain was mitigated; sleep returned; and the progress of the gangrene was suspended; in short, the patient had not felt so well since the commencement of her attack. At the expiration of a fortnight the symptoms returned, and she was bled again, with similar benefit as on the former occasion. This treatment was adopted at each recurrence of the symptoms; the mortified parts separated, and the stump healed. Ultimately the patient left the hospital quite well.” He further remarks: “Since the occurrence of the above case, many patients affected with senile gangrene have been treated by bloodletting, and always with similar success. But is this treatment applicable to all forms of this disease? I think that it may be advantageously adopted whenever the disease is accompanied with acute pain and much swelling, the pulse is hard and full, and the face flushed.” He continues: “In all the cases of symptomatic gangrene which have come under my care, I have employed repeated bleeding, and have thus succeeded in curing, or at least relieving, two-thirds or three-fourths of the patients.” (*Dupuytren, on Lesions of the Vascular System, etc.,* pp. 25, 26. Sydenham Soc. Translation.)

We have quoted Dupuytren’s experience at length because we think that at the present day the value of bloodletting is under-estimated in the treatment of plethoric cases of senile gangrene—cases in which the pulse is hard and full, the face flushed, the pain great, the parts swelled and inflamed.

Dupuytren also says:—

“Opium is a valuable remedy, and, when combined with antiphlogistic measures employed according to the condition and power of the patient, I am acquainted with no better mode of arresting the progress of symptomatic gangrene at any period of its course. The surgeon will, of course, avail himself of other suitable means, both local and general, by which to second the influence of these important primary agents, opium and bloodletting.” (*Ibid.* pp. 26, 27.)

The treatment of the variety of gangrene which was first of all described, namely, that which results from thrombosis beginning in the capillaries or minute arteries of the toes and feet, is quite simple when it is not accompanied by any local inflammation. We must wait for the process of mummification to limit itself, and for the mummified parts to separate and drop off. All we can do is to attend to the alimentation of the patient, and administer opium or morphia to alleviate pain, with laxatives to secure an open state of the bowels.

But, when this variety of gangrene is attended with the symptoms of local inflammatory action—when the mortifying part is swollen, hot, and moist—the treatment may prove to be very difficult. In the cases belonging to this category the pain is apt to be dreadful, the stench arising from the rotting tissues intolerable, and the risk of the occurrence of septicaemia considerable. In such cases if the patient has a full, hard pulse, a flushed face, and a strong constitution, it may be advisable to take blood from the arm, as recommended by Dupuytren. At all events, it will be necessary to administer opiates in such doses and at such intervals as shall secure freedom from the pain, and purgatives often enough to keep the bowels in a soluble condition. If the patient is feverish the liquor ammoniæ citratis or acetatis should also be administered for the purpose of allaying that condition. With regard to local applications we cannot do better than call to mind the words of Mr. Pott: “Whatever beats, irritates, or stimulates, or gives uneasiness, appears to me always to increase the disorder, and to add to the rapidity of its progress. And, on the contrary, I have always found that whatever tended merely to calm, to appease, and to relax, at least retarded the mischief, if it did no more.” It is generally desirable to keep the living parts warm; consequently, the limb may be wrapped in cotton-wool, or flannel. If the mortified part is dry, no particular local application is needed; but, whenever it is moist or emits a stinking odour, it may be enveloped in a charcoal poultice, made by mixing powdered charcoal and linseed-meal; or be dressed with folded cloths soaked in the Girondin disinfectant liquor, or in a solution of carbolic acid one part and water two hundred parts; or be surrounded by muslin bags filled with finely-broken wood charcoal. Stimulating applications, such as brandy, balsams, or resins, are usually worse than useless. (*Simon.*)

“If we attempt to combat the disease,” says Simon, “by throwing in bark, and overloading the system with all sorts of stimulants and excess of food, we shall produce an increase of the local vascular excitement, which will be immediately followed by spread of the gangrene. I have known patients over-persuaded to take nourishment against their appetite, but never has the transgression been done with impunity. In cases of humid gangrene, a light farinaceous diet is usually the most fit, and stimulants should be given with caution—port-wine mixed with water being that usually preferred. Opium must be given in doses sufficient to allay pain, and should be continued during the day as well as the night. The patient must be confined strictly to bed, the limb kept warm and slightly raised. Finally, let the surgeon beware of interfering with the separation of the slough; nature will accomplish the task best when unaided. Indeed, surgical interference of any kind is, as a rule, dangerous.” (*Holmes's System of Surgery*, vol. i. pp. 172, 173, 2d. ed.)

But when the main artery of the limb becomes primarily obstructed with thrombi so that the flow of blood through it is arrested, the treatment must be conducted on different principles. In such cases the first object to be accomplished is to save the exsanguinated part of the limb from becoming gangrenous. This is to be done by preventing the extension of the thrombus, by favouring the establishment of a collateral circulation, and, more

than all, by protecting the weakened limb from irritation and injury, which might overtask the little vital power it still retains. The normal temperature of the limb should be maintained by enveloping it with flannel or cotton-wool, and surrounding it with bottles of hot water, for if it is allowed to grow cold the tendency on the part of the thrombus to extend itself will be correspondingly increased. If the heart's action is weak, alcoholic and other stimulants should be administered for the purpose of arousing it, and thus preventing such a stagnation of blood in the arterial channels of remote parts of the body as especially favours the occurrence of thrombosis. Opium or morphia should also be administered in sufficient quantity to keep the patient quiet and free from pain. At the same time, care should be taken that nothing is placed around the limb which shall compress it or interfere in any way with the establishment of a collateral circulation. If happily the life of the limb is preserved, the patient should be kept perfectly quiet for several days longer, lest secondary arteritis with disintegration of the clot may supervene. He should also remain quiet until the coagulum becomes organized; or until from shrinking and absorption it becomes canalized or withdraws itself to one side of the artery, and thus allows the circulation in some measure to be resumed. But if unfortunately mortification occurs, we must support the patient's powers by the administration of nourishing broths, stimulants, and opiates, with the hope that a line of separation may be formed, and that in this way the patient's life may ultimately be saved.

Should amputation be practised for this variety of gangrene? When it is present the risk is often very great that death from septicæmia will occur before a line of demarcation is established, and then the surgeon may be sorely tempted to cut off the mortified limb with a view to save the blood from becoming contaminated by the absorption of putrid matter. On this important topic Dupuytren remarks:—

“This operation has been performed by a well-informed surgeon frequently, and with success, during extension of gangrene; why not follow his example? This is the answer to the question. Where the gangrene is consequent on some cause acting from without, both cause and effect may at once be removed [by amputation]; but in cases like the above, where gangrene is but a symptom, it is clear that amputation can have no direct influence in arresting the disease. In short, it may be laid down as a rule, that amputation ought to be deferred until the line of demarcation is defined, and the exciting cause of the disease has been subdued.” (*Dupuytren*, op. cit., Sydenham Soc. Translation, p. 27.)

There are, however, exceptions to this rule, and, therefore, each case should be carefully judged by itself.

When arterial thrombosis of the extremities induces secondary arteritis of a suppurative character and the formation of an abscess, as it sometimes does, this abscess should be opened at as early a period as practicable, by free incision, its contents evacuated, and its cavity cleansed with some

antiseptic wash, such as a weak solution of carbolic acid or liqueur de Labarraque, for softening or disintegrating blood-clots are very apt to lead to the occurrence of unhealthy suppuration.

62 EAST 12TH STREET, Oct. 7, 1872.

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**ART. IV.—***Account of the Epidemic Smallpox as it prevailed in Allegheny City, Pa., in 1871, and its Treatment.* By DANIEL LEASURE, M.D., of Allegheny City. (Read before the Bedford Club, Dec. 15th, 1871.)

IN the early part of the summer of 1871, there was an unusual prevalence of smallpox in the city of Pittsburgh and the surrounding municipalities; and by midsummer the disease had assumed the characteristics of an epidemic.

Much discussion arose as to the best means for meeting the emergency, but it was ultimately decided, on the night of the 6th of November, by the citizens of Allegheny City, to erect a temporary hospital at the Poor farm at Claremont, nine miles from the city; and on the 15th of that month the first patient was received into it.

At the request of the Health Officer, J. B. Williams, I drew up a plan for an hospital, and superintended its construction and equipment. It consisted of a building 32 by 78 and 12 feet in height, constructed of rough plank, the seams being covered by strips; 50 feet of this comprised four wards, two for males and two for females and children. A hall 8 feet wide, open at both ends, interposed across the building, on the side of which, opposite the wards, were the steward's room, the kitchen, and two dormitories, one for male and the other for female attendants.

The building was heated by a Franklin stove in the end of each ward, and the ventilation was secured by the erection of a terra-cotta pipe twelve inches in diameter for each stove. These terra-cotta pipes were set on brick pillars eight inches in height, leaving spaces between them near the floor. The stovepipes entered these terra-cotta pipes about three feet above the floor, and forming an elbow in their centre were carried up through them and several feet beyond their termination, two feet above the roof. An Emmerson's ejector was placed over all. Their *modus operandi* is as follows: The air furnishing draught for the fire passed up the stovepipe proper and carried out much of the air of the ward. The radiated heat from the stovepipe rarefied the column of air between the stovepipe and its inclosing pipe of terra-cotta, thus creating a constant current of cold air at the floor, which passed through the spaces between the little brick pillars, and prevented the waste of heat radiated from the

stove. The plan worked so well that much less fuel was used to maintain a proper temperature than would otherwise have been required; and the sickening odours from the patients were not perceptible, even when but a very small quantity of disinfectant was used.

Besides this hospital building there was at the distance of sixty feet another building constructed in the same manner 32 feet square, one-half of which gave a wash and mangling room 32 by 16 feet, with dormitory for laundresses, and two wards, 16 feet square each, used as convalescent wards, where the patients were removed during the period intervening between convalescence and fitness to be discharged. While in these wards their persons and clothing were purified before permitting their return to the city. There was also a disinfecting house composed of rough plank, 8 by 15 feet, where the patients' clothing was suspended to the sides and ceiling, and submitted to very strong fumes of burning sulphur. The bedding consisted of white cotton sacks filled with oat-straw, and pillows of the same, which were frequently emptied, the straw being burned, and the sacks washed. These with muslin sheets, army blankets, and long soft muslin shirts, constituted the bed furniture proper, while the bedsteads were of iron of the army hospital pattern. A hospital steward, two male and one female nurse, with cook and laundress, constituted the service force of the hospital.

Thus prepared I assumed charge of the hospital on the 13th of November with one patient in the third day of eruption, with confluent smallpox; and at the end of ten days, ten cases of very severe confluent variola and twelve cases of discrete variola and varioloid of various degrees of severity, were admitted, and afterwards two cases of confluent variola and six of varioloid were received up to Dec. 12th, one month from the opening of the hospital.

*Treatment.*—For a long time I had noticed mention made of the uses of the sulphites of lime, soda, and potassa in the treatment of zymotic diseases, and of the claims set up in their behalf, founded upon the theory, with which the readers of this Journal must be familiar, that, as these substances arrested or prevented fermentation in amylaceous, glucose, and saccharine substances out of the living body, they would also arrest or prevent a similar zymosis in the fluids and tissues of the living body; assuming that the process of incubation and development of disease in the body was of the same zymotic character: in other words, that the poison or virus in certain forms of disease was a true leaven, which, like the yeast plant and certain other forms of the microscopic cryptogami, was capable of being introduced into the fluids of the body, where, finding a suitable soil or nidus, it reproduced itself *ad infinitum*, at the expense of the vital constituents, giving rise to various abnormal results, as smallpox, measles, scarlatina, cholera, etc. In addition to these notices of the application of the sulphites, several well-authenticated reports have been

made of their apparent efficacy in typhoid and typhus fever and in smallpox. Without any well-defined theory of my own, either for or against the zymotic theory of disease, or of the action of the sulphites in arresting zymosis, I felt favourably disposed to give them a trial, and was the more inclined to this from having seen several cases of smallpox prove fatal in private practice during our present epidemic, in spite of the best means tried. This led me to hope but little from the purely expectant plan or from an officially active one. I had observed patients die in the onset of the disease, before the eruption was fully developed, and for similar cases I could conceive of no remedy.

Others died evidently from severe pustulation of the throat and nares, apparently in some instances destroying the larynx; while in others, again, death seemed to ensue from the putrid exhalations from those organs so poisoning the air as it passed over them to the lungs as to render it unfit to vitalize the blood, and perhaps giving off its poisonous gas to still farther vitiate the vital qualities of this fluid.

But by far the greater number of cases died during the progress of the secondary fever, which set in about the tenth or eleventh day of the eruption. This I conceived to be a true pyæmic septæmia (if I may be permitted to use the former word adjectively), for, while there was undoubtedly septæmia, the result of the inhalation of the poisoned gases passing through the putrid throat and nostrils, there was also in some cases true absorption of pus, as manifested by the deposits in various portions of the body.

If by any means the secondary fever could be prevented, I felt sanguine that some patients might be saved. The report of some cases of smallpox treated by a navy surgeon in which, after the free administration of the hyposulphite of soda, the patients escaped secondary fever, encouraged me to give it a trial. Accordingly, as soon as an unvaccinated patient was admitted to the malignant ward, I ordered from thirty to forty grains of the hyposulphite of soda to be administered every four hours, until the eruption passed into the true purulent stage, when I directed glycerin, four ounces; muriated tincture of iron, half an ounce; chlorate of potassa, two drachms; sulphate of quinia, one drachm. A tablespoonful to be given every four hours. I need hardly state my reasons for the latter prescription in the purulent stage, as they must be obvious, if I am correct in assuming the secondary fever to be the result of pus and poisonous gases absorbed into the blood.

At the same time, to meet the indications in severe pustulation of the throat and nares with putrid discharges, I directed at first a gargle, consisting of water, eight ounces, and chlorate of potassa, two drachms, to be kept in a wide-mouthed bottle at the patients' bedside, from which they were to gargle their throats every few minutes in grave cases, and to swallow a portion each time. Second, to wash out the nares with

a pump syringe; the patient holding his head over a basin, while the nurse inserted the pipe of the syringe into one nostril, and, directing the patient to open his mouth, to forcibly inject from a basin through the nostrils, after the manner of the ordinary nasal douche, a wash composed of water, eight ounces; chloride of sodium, two ounces; carbolic acid, two drachms. This to be repeated *pro re nata*, as those passages filled up with putrid matter. This afforded so much relief that the patients were in the habit of calling for it whenever they felt the least discomfort from plugging up of the nostrils. To those who may not have witnessed this operation in severe cases of nasal pustulation, the amount of putrid discharge driven out by the pump would seem simply incredible.

All of the grave cases had more or less delirium; in some of them it amounted almost to violent mania, with the action of the heart fearfully accelerated, rising as high as one hundred and sixty pulsations to the minute. In such cases, as well as in the milder ones, I ordered thirty to forty grains of the hydrate of chloral, to be repeated in one, two, or more hours, as might be required to control the delirium, and induce calm sleep. On waking up after a few hours, the delirium had ceased, the patient was calm and perfectly rational, with the heart's action reduced to eighty or ninety, and in no case was there a recurrence of any mental excitement, which did not readily yield to twenty grains of chloral. From my experience with hydrate of chloral in the delirium of smallpox it seemed to exert some other, in addition to its hypnotic, action. It appeared to exert a peculiar if not specific effect upon the nervous system in general, and upon the vaso-motor nerves in particular, apparently in no way connected with its sleep-producing power. So marked was this, that my hospital steward observed it, and remarked that a patient always improved after thorough chloralization.

Conjoined with the treatment by medication, strict cleansing was enjoined. The patients were sponged off with tepid water and juniper tar soap twice daily, and their body and bed linen changed every second day.

Not a single dose of a cathartic or laxative was given in the hospital during the entire course of the disease.

The diet consisted exclusively of fresh milk, beef-tea, and eggs. Of the former, from a half to two-thirds of a pint were taken every four hours, and of the beef-tea occasional draughts, as the patient could be induced to take it. Milk was what all wanted, and it was given *ad libitum*. When the disease had passed into the purulent stage, and all through the period of desquamation, a liberal supply of good pure rye whiskey was given, in the form of milk-punch, from two to four times daily.

Several of the patients became excessively debilitated, and to them more whiskey was given.

As a disinfectant, I first gave a thorough trial to Tilden's solution of bromo-chloralum, and came to the conclusion that if the specimen used

was pure, it is utterly worthless. I used afterwards chloride of lime, and a solution of chlorinated soda, both in moderate quantities, and with the system of ventilation in the wards, there was no offensive odour at any time, even when eight malignant cases were in one ward.

Some deviations were made from the general medication, which will be noted in summing up; and, in giving results, I shall confine myself, so far as treatment is concerned, entirely to the twelve cases of malignant or confluent variola, and, first of all, I shall notice those which proved fatal.

Of the twelve cases of unvaccinated confluent smallpox three died.

The first was a white man aged 27 years, admitted on the third day of the eruption. He was put upon thirty grains of the hyposulphite of soda, and up to the fifth day of the eruption seemed to be doing very well. On the evening of that day he expressed himself as feeling quite comfortable. On noticing that his breathing was rather hurried, I ordered the light to be admitted freely, and found the entire skin of the face of a bluish-lead colour, and the vesicles on the body purple and livid, with numerous purple petechiae between the vesicles; pulse one hundred and forty; evidently a case of variola nigra. He died next morning, retaining his reason intact till the last moment.

The next death was a coloured man aged 29, admitted on the sixth day of the eruption with intense pustulation of the throat and nares, and no efforts of the nurses availed to keep the passages clear, and he died, on the eighth day of the eruption, from suffocation.

The last death was a child eleven months old. Its father died three weeks previously from smallpox, and its mother took the disease and still continued to nurse the infant at her breast. It was never vaccinated, and, taking the disease in the confluent form, was admitted to the hospital with its mother on the fifth day of eruption, still nursing from her breast. It died from exhaustion on the eighth day of the eruption.

Of the remaining nine cases, six admitted on the second day of the eruption took forty grains of hyposulphite of soda every four hours, with chloral to control delirium, and milk diet *ad libitum*. All had the disease in the confluent form, with profuse pustulation of throat and nostrils, requiring almost constant gargling, and very frequent applications of the nasal pump. *All escaped secondary fever*, and made good recoveries.

One white man, aged 22, admitted on the second day of the eruption, threatened to be an extremely bad case, and I decided to give the carbolic acid treatment a fair trial, *without* the hyposulphite. Five grains of carbolic acid in simple syrup were given every four hours. Otherwise the general treatment was the same as in the other cases. He had furious delirium, requiring large and frequently repeated doses of chloral to control it. The eruption was excessive, and the secondary fever frightful, leaving him seamed and pitted very badly, with abscesses on the sides of the nose and cheeks. He required immense amounts of whiskey, valerian, and carbonate of ammonia, to support him until, with the aid of his robust constitution, he passed into convalescence. I did not try the carbolic acid treatment on any more patients.

One patient, a white male, aged 29 years, came from some point on the Allegheny Valley Railroad, and, having been put off the cars, walked a

day and night without food, till, on reaching sight of the hospital, he sank down exhausted, and was carried in by the attendants and placed in bed. It was the fifth day of the eruption, which was confluent on face, hands, feet, legs, and back. The pulse was one hundred and forty, with much sore-throat and cough, and profuse pustulation of the nares, with fetid discharges. He was put upon the hyposulphite of soda, with as much milk as he would take, which was very little. Delirium of the low muttering form was constant, and on my visit next day I found him with profuse red watery diarrhoea, four or five discharges in an hour; abdomen greatly distended and very tympanitic, with much tenderness in right iliac fossa; tongue dry, with red edges, pale side stripes, and dark-brown stripe down its centre. It seemed to me probable that this man had been exposed to the poison of typhoid fever, as well as of smallpox, or that his fatigue, exposure, and fasting had superinduced it upon his variola.

He was ordered a grain of opium at every second discharge from the bowels, provided it did not occur within less than an hour from the previous discharge, and a tablespoonful every two hours of tincture of valerian and simple syrup, each, two ounces; carbonate of ammonia, two drachms. During four days he remained almost stationary under this treatment; with strong beef-tea and strong milk-punch every four hours. Finally, the typhoid condition passed away, leaving him greatly prostrated; and after the period of variolous desquamation, he had a large abscess over the sacrum, and another on the outer side of his right knee, and one in his neck, which on being opened discharged large quantities of pus, and large plugs of dead cellular tissue, such as we so frequently see as a sequela in low forms of typhoid fever. It is hardly necessary to say that we could scarcely tell, in this case, whether we had any secondary fever or not. He was greatly emaciated, but cheerful and hopeful, and on Aug. 1st he had fully recovered.

The last of the nine surviving cases of unvaccinated confluent smallpox was a coloured woman aged 26, admitted on the fifth day of the eruption, which was confluent on face, hands, arms, legs, feet, and back. On the eighth day of the eruption, typhoid symptoms appeared, very similar to those described in the last case, and the same treatment was adopted with the same results. In both these cases death seemed imminent, at one period of the disease, from suffocation, but the nasal pump dislodged the fetid accumulations, and they rallied.

To sum up: there were thirty cases of variola and varioloid, taken indiscriminately from the homeless population of Allegheny City just in the order in which they appealed to the Board of Health for help and shelter, including pure Celt, pure Saxon, pure African, and mixed American.

Of these thirty, three died, one pure Saxon infant, one African adult, and one native-born American. The first died of exhaustion, the second of suffocation resulting from pustulation of throat and nares, and the third from black smallpox; ten per cent. of deaths.

The practical points in the treatment consisted of good ventilation, personal cleanliness, attention to the condition of the upper air-passages, keeping them clear by frequent applications of the nasal pump, charged with a solution of chloride of sodium and carbolic acid; hyposulphite of soda liberally administered during the vesicular stage, with glycerine, iron,

chlorate of potassa, and quinia during the purulent stage, with valerian, carbonate of ammonia, and whiskey in prostration, hydrate of chloral in the delirium, and all through every stage of the disease, a liberal supply of fluid food, in the form of milk, beef-tea, and raw eggs, and an entire absence of all purgative medicines. I would call attention to the entire absence of secondary fever in the six uncomplicated cases treated by the hyposulphite of soda during the vesicular stage.

I am not prepared to claim that the escape from secondary fever was exclusively the result of the hyposulphite, but, if not a case of "*post hoc ergo propter hoc*," the coincidence is at least remarkable, and, following in the wake of numerous similar cases already reported, would indicate that the practice is worthy of further trial.

I must deprecate the idea that there is anything new or startling in these results, or that there is ever likely to be found any specific for pure unvaccinated smallpox; but hope that the general plan of treatment adopted in the hospital under my charge may meet the approbation of my professional brethren, to whom it is submitted, with many misgivings from a scientific point of view, but some confidence in its practical utility.

*Note.*—At the end of six weeks from the time I entered on duty at the hospital, owing to the stringent measures of the Board of Health of Allegheny City, the smallpox was stamped out, and in a short time the hospital was closed for want of material. "Revaccination" was *thoroughly* adopted in the city, and the disease was arrested for want of fit subjects. Revaccination was not made obligatory by ordinance, but the physicians by common consent, in a great common danger, vaccinated and revaccinated every one who applied, and the mayor of the city, Hon. A. P. Callow, lent his official aid and personal influence to second their efforts.

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ART. V.—*Description of Febris Diphtheroides, a hitherto undescribed Disease; with Cases.* By G. HARRISON GRAY, Acting Assistant Surgeon U. S. Navy; attached to the U. S. Naval Hospital, Yokohama, Japan.

I PROPOSE the name of *Febris Diphtheroides* for a disease which has attracted my attention, and which differs sufficiently from any other to be entitled to separate mention. So far as I am aware it has never been described, and is, I think, peculiar to Chinese rivers.

I first observed it up the Yang-Tse-Kiang River, afterwards at Shanghai, still later at Ningpo, both these places being on fresh-water rivers, and finally the last traces of it disappeared when we again commenced cruising in salt water.

Though diphtheria is by no means an unknown or uncommon disease in

the northern part of China, especially about Pekin, and though intermittent fever abounds in all parts of the country, this disease which I have called diphtheroid fever, and which presents some of the features of both those mentioned, seems peculiar to fresh-water rivers, and was unknown to physicians who had resided for a long time where I saw it. From this I fancy some of the elements necessary to the production of the disease were carried there in the ship, for while in Corea many of the crew had suffered with a sort of subacute pharyngitis, and our trip up the Yang-Tse Kiang followed immediately after our return from Corea.

In describing and differentiating the disease under consideration, I shall follow the general plan pursued by Dr. Flint in his description of diphtheria, as it most nearly resembles that.

*Anatomical characters.*—The principal feature of the disease is a fever of greater or less intensity, accompanied by an inflammation of the mucous membranes of the body, this inflammation being attended with an exudation which has a tendency to become organized.

The fauces are first affected, and in some cases the local manifestations are limited to this situation. The first appearance is redness of the fauces and soft palate, attended by more or less swelling of both tonsils. Sometimes one is affected more than the other, but in all cases both are involved to some extent.

The exudation is at first thin and transparent like the white of a raw egg, but soon becomes opaque and thick. The edges are well defined though not so abrupt as in diphtheria proper. The exudation begins in little vesicular points at the base of the uvula and becomes best developed upon the posterior wall of the pharynx. Exfoliation takes place within a few hours, and is generally followed by a second or third formation, each new formation in some cases being accompanied by another chill. The lymphatic glands of the neck are enlarged but do not suppurate, and the swelling is so slight as readily to escape detection. It is uniform, and does not seem to bear any relation to the severity of the throat trouble. The common follicular secretion over the tonsils is seen, but is easily recognized by its pultaceous character, and by its dipping into the follicles. In the cases studied the nares or Eustachian tubes were not affected. In one case the gums, and those parts of the cheeks in contact with the teeth, were the seat of exudation. The œsophagus and stomach may be affected, and the small intestine is in the majority of cases. Exudation in the larynx sufficient to retard respiration is rare though it may take place.

*Clinical history.*—The first thing complained of is general lassitude and disinclination to exertion, which becomes progressively more marked for two or three days. The appetite fails gradually until there is complete anorexia. In every case the bowels are closed, but relief is readily obtained by the administration of a simple laxative. There is generally a well-marked chill, followed by fever, though sometimes flushes of heat and cold

alternate. The patient says he feels as if he "had been pounded." The skin in all cases is of a higher temperature than normal at first, and sometimes presents peculiar appearances. In one case there was the first day a roseolar eruption over the abdomen, which quickly faded and did not return. In another, the whole body looked as if it had been rubbed with whale oil, and this appearance, like the eruption in the other case, disappeared within twenty-four hours. So far as my observation has gone, there is the same condition of the tongue in every case. The edges are red, looking like raw beef, and the rest of the organ resembles an unbaked brick. I have never seen the same shades of colour in any other disease, and as this condition is present in every case of the disease under consideration, I regard it as one of the best diagnostic features if it be not pathognomonic. The pulse is variable, in some cases full and bounding, and in others simply increased in rapidity, while in the worst it is at first rapid but soon becomes slow and feeble.

In nearly every case there is early pain and tenderness in the abdomen, and when this appears at all it is within forty-eight hours after the chill, most often within twenty-four. The tenderness is ascribed to the region of the colon, principally over the sigmoid flexure. There is also a good deal of tympanitic distension, accompanied with rumbling or grumbling sensations.

The countenance of the patient is in most cases anxious and haggard, expressive of pain or distress somewhere in the economy. The local trouble in the throat is rarely complained of, and for this reason there is danger of its escaping detection. The sensibility of the palate, and other parts which are the seat of the inflammation, is entirely wanting, and they can be pinched, pricked, or tickled without producing any discomfort. Indeed temporary paralysis exists, though there is but little difficulty in deglutition except in bad cases.

The exudation is found upon examination of the throat as early as the second day. I have never seen a piece of false membrane larger than a little finger, and as a rule it occurs in small narrow strips which are easily detached. The colour is an ashy white, though from its situation it is liable to become changed in colour by contact with articles of diet or medicine. But the gravity of the disease is by no means dependent upon anything local, and it is difficult to determine what it is that so rapidly prostrates and exhausts the sufferer.

The pulse rarely exceeds one hundred, and often is accelerated at first only, and becomes slower than normal later in the disease. It is sometimes irregular, though I have not noticed any unfavourable symptoms connected with this. Hemorrhages do not occur. The skin is increased in heat at the beginning, sometimes in a very marked degree, but this rarely continues longer than a day or two, and in some rare cases is succeeded by coldness. In the worst case I have seen, this coldness of the

surface came on the second day, and continued to increase up to the time of death which took place on the fourth day.

As in diphtheria, there are various accidental appearances of the skin in different stages of the disease, such as rose spots, papulæ, sudamina, etc.; but little importance is to be attached to them.

I have seen but one case where there was difficulty in breathing, and this was confined to the act of inspiration, and was accompanied by a sense of fulness and constriction in the larynx. This lasted but a few hours, and, so far as I could discover, no false membrane was expectorated.

Anorexia is from first to last a prominent symptom, and an apparent difficulty in deglutition will sometimes be found to be only a disinclination to take food. Vomiting occurs only after the exhibition of some disagreeable article of ingesta. Diarrhœa is never present, the bowels being confined at first, and requiring a laxative from time to time through the whole course of the disease.

Except in grave cases the mind remains unaffected. Delirium is a fatal omen, and is generally followed by collapse, coma, and speedy death.

In the majority of cases the urine contains albumen in greater or less quantity, and death occurring early and in connection with delirium and coma, is doubtless owing to uræmic poisoning. I have failed to note any relation between the amount of albumen in the urine and the extent of the exudation.

The duration of the disease is from one to two weeks, the results in five cases being as follows:—

1st Recovery in	16	days.
2d	"	11 "
3d	"	12 "
4th	"	10 "
5th Death in	4	"

Diphtheroid fever may be associated with other diseases, but such complications are, I think, accidental.

All the four cases of which I have full notes, and several others which terminated favourably, have been under my observation for nearly a year since, and in not a single one have I seen any of the characteristic sequelæ of diphtheria, they all having quickly recovered, and steadily maintained their usual robust health.

Paralysis of particular regions exists during the course of the disease, but so far as my observations have gone, it is limited to this time, and does not remain after other symptoms have ceased. The bladder may become affected, causing retention of urine, and I have no doubt the constipation is due in some measure to involvement of the rectum.

One trouble which I do not find recorded as present in diphtheria, is as a rule a part of this disease, and to it the patient ascribes most of his suf-

fering. This is distension and pain in the abdomen ; the pain being most marked over the sigmoid flexure. There seems to be tenderness along the entire intestinal track, but in the large intestine it is most severe, the regions traversed by the transverse, descending, and sigmoid flexure of the colon being extremely sensitive to pressure, even the weight of the bed-clothes becoming at times insupportable.

*Pathological characters.*—Diphtheroid fever is evidently closely akin to diphtheria, and is a constitutional disease, with a local manifestation in mucous membranes. The primary lesion is probably an as yet undiscovered blood change, and the visible characteristics and legitimate effects of this. I have seen but one death from it, and in that case a post-mortem was impossible.

The paralysis I am inclined to think is an effect of the local inflammation, as the sensory filaments alone seem to be affected, and these only—at least in the parts that can be seen—where inflammation and exudation occur. The line seems to be quite sharply drawn, where in the same structure sensation ceases and begins. Perhaps the exudation, which must be infiltrated through the mucous membrane, contains some morbid product which has the power of benumbing or destroying the sensibility of the nerve filaments with which it comes in contact, for certainly it cannot be the nerve-centres that are first affected, else all branches would sympathize. I do not advance this as a theory, for I cannot prove it to be the case, but observation certainly shows that the paralysis exists where the peculiar exudation occurs, and does not exist in closely contiguous parts of the same structure which are free from outward signs of the disease.

*Causation.*—Diphtheroid fever is an endemic disease. It may have a special cause, or it may be produced by a cause which, in another condition of the system, would result in something else. It is undoubtedly of miasmatic origin, but we have yet to learn whether the form of disease caused by this miasm, is determined by properties peculiar to different emanations, or by the condition or idiosyncrasy of the person exposed to their influence. From my limited experience of the disease it would be impossible to determine whether it be communicable or not, for all who suffered from it were exposed to the same influences of climate, lived upon the same kind of food, and were in all respects situated alike. To be sure they were not all attacked at the same time ; but that proves nothing, for the stage of incubation in most diseases, more especially those of miasmatic origin, differs widely in duration. All the cases of which I have records were males and between the ages of 20 and 40.

*Diagnosis.*—The only difficulty in diagnosis is the liability of failing to examine the throat, which from the very first presents signs of the disease. Aside from this there is nothing at first to indicate more serious trouble than a simple attack of intermittent fever. But the condition of the tongue of which I have already spoken, the uniform constipation, and the

abdominal symptoms will quickly attract attention, and then if the throat be examined there need remain no doubt of the character of the disease.

*Prognosis.*—The greater number of cases terminate favourably. When death takes place it will probably be from uræmic poisoning, starvation, or some intercurrent affection.

*Treatment.*—The indications in treatment are to keep the bowels and bladder clear, to support the system, to relieve pain, and to remove the cause of the disease. Very little result can be obtained by local treatment, and on account of the insensitive condition of the parts implicated, strong caustic applications will be apt to do more harm than good.

It should be borne in mind that the local trouble is not the disease itself, and it would be quite as reasonable to expect to cure a man shaking with ague by binding him down, as to remove the cause of the disease by treating a single symptom of it.

Attention is first to be paid to the bowels, as in the majority of cases the patient will confess to have had no passage for several days. Tonics will be required from the very first, and the best one is, I think, the citrate of iron and quinia in full doses. I use it in vinous solution, giving a half ounce of sherry with each dose of the iron. Frequently milk-punch, or some equivalent, will be required, and it may be given very often without bad effect. Symptoms are to be treated as they occur. If the skin becomes hot and dry, the neutral or some diaphoretic mixture is indicated. Pain is to be relieved at once, lest its exhausting effects prove fatal. On account of the disposition of the bowels to remain closed, it is well to use some preparation other than opium for the relief of pain. The hydrate of chloral I have found very serviceable here.

Abdominal pain and tympanites will command early and careful attention, and must be relieved as soon as possible. Warm fomentations over the seat of pain, or turpentine stupes, are often grateful, or turpentine taken internally, combined with stimulants, will, in some cases, produce comfort and refreshing sleep.

Local treatment to the throat is called for only when the patient complains of soreness or stiffness, and then a single application, or at most two, of a strong solution of hyposulphite of soda will afford relief almost at once.

The most careful and constant attention must be paid to alimentation, or the patient will die of innutrition. It is sometimes necessary to administer food by the rectum, there is so great an aversion on the part of the patient to take anything by the mouth. The sense of taste is blunted or altogether wanting, so the pleasure of eating does not compensate for the exertion, and, moreover, there is no desire for food. Rich concentrated broths and essences should be selected, which contain most nourishment in the least bulk, and then given regularly and freely without

regard to the desire of the patient. If he will not take them by the mouth, they must be given per rectum.

Early inquiries must be made as to the condition of the urinary organs, and, if necessary, the catheter passed at regular periods.

All the foregoing points of treatment refer simply to supporting the system, and maintaining the strength and comfort of the patient. It remains now to consider, whether there be any method or mode of treatment whereby we may shorten the disease or eradicate its cause. I believe that there is, and though not claiming for it specific qualities, I must say that its effects are most happy, and I strongly recommend its use in the treatment of pure diphtheria. This is the hyposulphite of soda. Being convinced that the disease is caused by the presence in the system of some vegetable or animal parasite, I administered the hyposulphite, with the hope of striking at the root of the trouble.

In every case but one recovery followed, and in this one collapse occurred so early, as to render useless any treatment, except of the most active nature.

Permanganate of potassa, recommended by Dr. Samuel Jackson, Dr. Mackall, and others, in the treatment of diphtheria, I tried without effect, but as soon as the hyposulphite was substituted, recovery began. I give it in twenty to thirty grain doses, every three or four hours, until the body of the patient is saturated, as is evinced by the peculiar smell, and his complaints of a bad taste in the mouth. This is generally the first evidence afforded of a return of the sense of taste, and at this point the treatment may be discontinued, only going on with the tonics and stimulants if necessary.

Convalescence is rapid, and in no case after the appetite has returned have I seen a relapse, though it is well to keep up the iron and quinia some time after all signs of the disease have disappeared.

The following are a few of the cases. I have seen altogether about a dozen, though I have notes only of five, and much that is embodied in the above account is taken from the appearances of the disease in general, rather than its exhibition in any particular case.

**CASE I.** Sept. 25, 1871. G. A., *aet.* 25. Native of Ireland. Sailor. Was taken sick three days since with stiffness in the joints and general lassitude. Yesterday had a chill, followed by high fever, some of the latter remaining this morning. Tongue heavily coated, except at edges, which are red; pulse full and bounding; skin warm, and looks as if it had been oiled. Is constipated.

Ordered *ol. ricini*, and after catharsis, diaphoretic mixture every half hour.

26th. Is quite sick to-day. Was very restless and a little delirious last night. At 4 o'clock A.M., he had a high fever, with great heat of skin, flushed face, and complained of pains in the abdomen on pressure. Gave him at that time gr. x. of chloral, with orders to repeat in two hours if

necessary. Soon after taking it he fell asleep, and has not waked until 9 A.M. Complains of exhaustion and great weakness. Has a thick papular rose-coloured eruption over the chest and abdomen. Pulse 90, and full; skin hot and dry. Has no pain anywhere now. Tongue still coated, though not so much as yesterday; pupils normal. Bowels were imperfectly opened last night. Abdomen tender on pressure. There is some retention of urine. Ordered chloral gr. v. every two hours, light diet, and a mixture containing ol. ricini, acid. carbolic, opii tr., and ol. menth. pip. to be taken until bowels are regulated.

27th. Very much better. Is weak, and slightly feverish, but all bad symptoms have gone. Took last night, at 9 P.M., chloral gr. xv., and after 12 o'clock slept well. Bowels were freely opened by the oleaginous mixture. Eruption has almost entirely disappeared. Pulse soft and steady; tongue still furred; skin a little hot, but moist and soft. Ordered hyposulphite of soda gr. xxx. every three hours, and stimulants according to taste; milk-punch if agreeable.

28th. Passed a comfortable day yesterday, until 7 P.M., when he had an exacerbation of fever, with pain in the abdomen and tympanites. Passed a poor night, but is feeling better this morning. Took last night chloral gr. xv., and tr. opii gtt. x., which failed to produce sleep. Bowels confined again. Ordered ol. ricini, and continue the hyposulphite.

29th. Better. Took potass. bromid. gr. xx., but did not sleep any. Is drowsy this morning, and says he feels "all right." Bowels open; skin moist and cool. Continue treatment, and ordered tr. ferri chl. t. d.

30th. No sleep at all last night, and about twelve o'clock had a chill. Is asleep now (9 A.M.). Has no increase of fever.

Oct. 1. Not so well. I find on examination that his throat is sore, and on being questioned, he says it has been so all along. Slept well last night. Continue treatment, and use chlorine water for a gargle.

2d. Complains of headache; bowels free; skin and pulse normal. Ordered quinia. From this time he recovered rapidly, and on Oct. 6th all treatment was stopped, except iron and quinia, and on Oct. 8th he was discharged well.

**CASE II.** Sept. 27, 1871. Geo. M., æt. 20. Native of Ireland. A soldier. Saw the patient last night about 6 o'clock, when he complained of feeling "hot." Had a fever, and was constipated. Ordered a full dose of ol. ricini, which operated freely. This morning he is quite sick. Pulse 90, full and quick; skin hot and dry; abdomen tender and tympanitic; tongue like an unbaked brick in centre, with very red edges; eyes normal; has a distressed expression of countenance. Ordered chloral gr. v. every hour.

28th. Better. Examination last night disclosed a false membrane in the fauces and pharynx, swollen tonsils, and deeply congested state of neighbouring parts. Was ordered a chlorine gargle, which seems to have detached the exudation. He has still some fever, and complains of feeling "sick all over." Ordered potass. permanganat., as recommended in diphtheria, also chloral at night.

29th. Skin moist this morning, and quite cool, pulse normal, bowels free, and no pain except in small of the back. Throat very much better. Continue treatment, and ordered tr. ferri chl. gtt x every two hours.

30th. Still the same. Complains of pain in left chest, and weakness. No fever. Bowels free. No change in treatment.

Oct. 1. No better. Suffered last night with pains in the back. Stopped the permanganate of potassa, and substituted hyposulphite of soda gr. xxx. every three hours. Continue iron.

3d. Had a severe paroxysm of chill and fever yesterday afternoon. This morning feels exhausted, has pains in left breast, and throat is worse again. Continue treatment, adding quinia gr. v. t. d. Improvement steady from this time.

6th. Omitted all treatment except iron and quinia.

9th. Discharged well.

CASE III. Sept. 27, 1871. H. W., æt. 29; native of United States; sailor. Had a chill yesterday, followed by fever, in which latter stage I saw him and ordered diaphoretic mixture. This morning is feeling better, but weak. Complains only of constipation and anorexia. Skin a little warm; pulse normal; tongue slightly coated. Ordered ol. ricini, and after catharsis, quinia sulph. gr. j. every hour.

28th. Worse. Suffers this morning from distension of the abdomen, with great pain, headache, and giddiness, with want of appetite. Throat is congested, but not greatly. Uvula elongated. Tongue covered in patches, and looks like an unbaked brick. Skin hot and dry, and pulse 100. Ordered to stop quinia and begin hyposulphite in xxx. gr. doses.

29th. Better. Throat quite clean, and all pain gone, except in small of the back. Yesterday afternoon the throat was covered in patches with a false membrane, and was brushed over with a strong solution of hyposulphite of soda. Now scarcely any of the membrane is left. Continue treatment; ordered, R. tr. ferri chl. t. d.

30th. Same. Did not rest well last night; was nervous and excitable, and is so still. Has severe pain in the back, with a heavy feeling of the head. Complains of difficulty in inspiration, and a feeling of constriction and fulness within the larynx. Has quite a high fever, with a hot skin and rapid pulse. Continue treatment. R. Diaphoretic mixture p. r. n.

Oct. 1. Better. Has no pain this morning. Has a peculiar sour smell about the body. Bathe the skin with acidulated water. Continue everything.

2d. Complains of nothing but slight pain, and distension of abdomen. Took potass. bromid. gr. xx. last night, and slept well. Continue treatment. Resume the quinia ter die.

5th. Some tympanites to-day. Bowels have not been moved for two days. Ordered ol. ricini, and continue the rest.

6th. Omit all but iron and quinia.

8th. Discharged well.

CASE IV. Oct. 1, 1871. J. G., æt. 40. Native of the United States. Sailor. Had been complaining for several days of flushes of heat, alternating with slight chills, and yesterday presented himself with high fever. Did not complain at all of his throat, but examination showed it to be congested with little narrow strips of false membrane over portion of wall of pharynx, and greatly enlarged tonsils. Has severe pains along the spine from occiput to sacrum. Is easier this morning. Took bromide of potassium last night, and slept very well. Ordered hyposulphite of soda gr. xxx. every three hours. Also, tr. ferri chl. t. d.

2d. Better. Throat still swollen, but very much better. Has no pains at all to-day, but feels weak and "used up." Ordered continue, and chlorine gargle.

3d Has some fever to-day, and feels very weak. Pain in left chest.  
6th. Omit all treatment but iron and quinia.  
7th. Discharged well.

CASE V. Nov. 8, 1871. H. L. P., æt. 30. Native of the United States. A stoker. Presents himself apparently with intermittent fever. Has had a chill this morning, and now has a fever. Complains of nothing else. Ordered diaphoretic during fever, and then quinia gr. j. every hour.

9th. No better. Skin is cool to-day, though the pulse is quick and feeble. His stomach rejects the frequently repeated doses of quinia. Give it in gr. v. doses three times to-day, combined with the carbolic acid mixture.

10th. Same. Continue, giving brandy fʒ ss. t. d.

11th. Worse. Has now (9 A.M.) a cold clammy skin, feeble thready pulse, and "fishy" eyes, with contracted pupils. Is nervous, sometimes delirious, getting up frequently to go on imaginary business of importance. Has been unable to retain anything upon his stomach for over three days. Bowels moved yesterday. Tongue like clay in centre, and red at the edges. Throat and fauces congested and purple. Tonsils swollen. Has had no sleep for forty-eight hours, and is completely exhausted. Says he is "too tired to keep still." I have tried in vain to quiet his irritable stomach, but he cannot retain anything long enough to be benefited. Last night I administered by the hypodermic method, m. x. of Magendie's solution of morphia over the stomach, but without benefit. Was delirious, and did not sleep all night. This morning has taken one dose of ammoniæ carb. turpentine, tr. opii. and brandy, combined in emulsion, and has retained it. Continue it every two hours.

2 o'clock P.M. Patient has been sinking ever since morning, and is now in a state of collapse akin to that seen in epidemic cholera. Heat has been applied to his body by means of hot bottles, blankets, etc., but he remains cold from head to foot; even the breath feels cold like the air from a damp cellar. Has not passed his urine since yesterday evening. About an hour ago gave him per rectum some brandy, quinia, and a raw egg, after receiving which he went to sleep, and seems to be so now. He cannot swallow, apparently rather from disinclination than inability. Pulse is coming up a little, but there is no perceptible change in the temperature of the body.

8.30 P.M. The same dose was repeated with the same effect at three o'clock, but he has gradually failed. At 6 o'clock P.M., the catheter was passed, and about a half-pint of urine came away. It was found loaded with albumen. Has suffered this afternoon with hypostatic congestion of the lungs. Has grown gradually weaker, breathing with difficulty, the mucous râles growing all the time louder, and arterial pulsations ceasing from the extremities toward the centre, until at 8.02 P.M., he died. A post-mortem was impracticable.

YOKOHAMA, JAPAN, June, 1872.

ART. VI.—*Cases of Injury to the Nervous System by the Explosion of Shell.* By BENJAMIN RHETT, M.D., of Abbeville, South Carolina.

THE huge artillery employed in the recent war between the States in attack and defence of the coast fortresses and batteries of the Confederate States, presented somewhat new features, not only in their effects upon masonry of forts and the iron armour of vessels, but in the injuries inflicted upon the frail tenements of human clay exposed to the blast of their baleful breath. Fragments of the shell fired from the twelve and fifteen inch guns tore through walls at Sumpter, seven and nine feet thick. Solid shot passed through several walls and exploded beyond the fort. A huge basement pillar of Fort Sumpter was sheared like a twig, the base being entirely carried away.

It is not my purpose here to treat of injuries inflicted by direct contact of shot and shell; they snuffed out life as a feeble taper is extinguished by the blast of a hurricane; but rather to invite attention to certain injuries of a nervous character, arising from explosions of shell near the parties injured, which greatly interested me at the time, and which struck me as novel; also to introduce a case that has a bearing upon the capability of air, compressed by the rapid passage of a large body, to inflict injury, visible to observation, upon man's body; and, lastly, to mention a case of great disorganization of the head and upper parts of the body without external marks of injury.

CASE I. During the siege of Battery Wagner, Morris Island, South Carolina, in 1863, on the 16th of July, some eight men of the 1st South Carolina Regiment of Infantry, were serving a gun in the gun-chamber of one of the angles of the fort. Into this chamber rolled a fifteen inch shell, and exploded. Two men out of the eight escaped unhurt; one had his leg so badly mangled as to require amputation below the knee; three were killed outright; the remaining two, Lieut. Poor and a private, were affected in a way which will bear detail.

Lieut. Poor was brought to the hospital in the following condition. His head was drawn back by rigid contraction of the muscles; the flexors of the hands also were so contracted that his fingers' ends almost came in contact with his wrists. His inspiration was difficult, prolonged, and whooping; his countenance wore an anxious, distressed expression; his mental faculties were apparently undisturbed. He seemingly understood all that was said to him. *There was no wound, bruise, or mark of external violence upon his person.*

I would here ask what force impinged upon the nervous organization, and what part of this organization was injured. It is easy to say the shock of the explosion caused an aberration of nervous action. This is merely a loose use of words to describe the thing witnessed. Is the force compressed air shocking or striking the nerves of the cutaneous surface, and causing these phenomena by reflex action; or does the jar or jolt affect the nervous centres, brain, and spinal cord, directly; or are those great gal-

vanic nervous batteries thrown out of gear by an overwhelming, if but momentary, electrical force? I am unable to reply, but to my observation the phenomena as closely resemble the effects produced by injuries to peripheral nerves as to the nervous centres directly.

**CASE II.** During the same siege Capt. Twiggs of General Talliaferro's staff, was ordered up on the parapet of Battery Wagner to report the position and doings of the fleet then firing upon the fort. As he stepped upon the parapet, a shell from the steamer Ironsides rolled up the opposite slope and exploded some yards in front of him. He fell, as witnesses expressed it, "all of a heap," his limbs giving way under him. When lifted, he walked into the hospital, trembling and shaking as in an ague fit; his head drooping forward, with his chin on his breast, being supported under each arm by a soldier. He fell into violent convulsions, of which he had in succession four or five. *There was no mark of external injury upon him.*

The same treatment was employed in both cases; active friction to the surface and gentle stimulation, with relief to the most urgent symptoms in both.

Both were furloughed for sixty days.

Lieut. Poor never returned to service, becoming paralyzed upon one side.

Capt. Twiggs recovered, but was killed before his return to service in an altercation near Hamburg, South Carolina.

**CASE III.** A private of the 7th Regiment South Carolina Volunteers, acting as sentinel upon the walls of Sumpter, was heard to utter a wail immediately succeeding the explosion of a shell. He was brought into the hospital in a state of collapse. Pulse and voice feeble; surface cool; pupil sluggish; muscles relaxed; and mind torpid. The shell exploded so near his person as to bespatter him from the abdomen to the feet with small scales that merely scratched the surface. One fragment, a little larger than the others, had, on the outer surface of the leg, tunnelled a passage beneath the skin about an inch long and escaped through a small ragged wound. He was retained in the fort some twenty-eight to thirty hours, and kept alive only by the most indefatigable care and attention, but died of the shock on his passage to the city hospital, not receiving on his passage the necessary care and attention. Died of asthenia, he never having regained sufficient nervous force to sustain the heart's action without the aid of stimulants.

Here we have one case of rigid muscular contraction spasm. The next, irregular muscular contractions; convulsions. The third, that of utter prostration, and muscular relaxation, all resulting from the shock of explosions. The nearer the explosion the more serious the injury. One recovers; one is hemiplegic; one dies.

I will report a fourth case presenting hysterical symptoms, but it differs from the others in being complicated by a wound that will partially account for the phenomena of the shock.

**CASE IV.** A shell exploded above and behind the head of Lieut. Brown, of the Charleston Battalion of South Carolina Volunteers. A fragment of the shell tore up a flap of scalp of a semicircular form, extending from back of the vertex behind, and about one and a half inch

above each ear as far as the frontal bone, and turned it completely over his face, causing him literally to present a "raw head and bloody bones." The cranium itself was uninjured. He was brought into the hospital chattering and crying out, and, although a brave man, suffered tortures, for fear the bomb-proof would fall in upon him. Some of this nervous disturbance was no doubt due to the wound; but I have often seen much severer injuries unattended by hysteria, and I concluded that his nervous condition was partly due to the shock of the explosion occurring near him.

**CASE V.** The private injured in the gun-chamber with Lieut. Poor was brought into the hospital a frightful object, bleeding at mouth, nose, and ears, his eyes protruding from their sockets. The sutures of the cranium parted, one parietal bone overlapping the other, and the sutures with the occipital and frontal bones loosened. The head dislocated from the neck, the latitude of motion showing either a parting of the ligaments, or that the base of the occiput was broken up. The thoracic and cervical regions were bloated, blown up with an escape of air into the cellular tissue; emphysema. Yet there was no external wound or injury. The place and time did not admit of a post-mortem examination.

Now the question arises whence this extensive disorganization? I offer the following suggestion, not professing to affirm its correctness. I think the man was driven by the force of the explosion head foremost into the earth wall of the gun-chamber; that the cervical vertebrae were driven through the fractured occiput, and the sutures were forced asunder from within by pressure upon the cranial contents.

**CASE VI.** This case involves the mooted point of the capability of compressed air or wind from a missile to bruise or inflict visible injury.

After a skirmish upon John's Island, in which the besieging gunboats took part, a private entered the Marine Hospital of Charleston, of which I was then surgeon, to be treated for discoloration of the skin, a purple, yellow, and green bruise extending from the mamma to ilium of right side, and from the umbilicus to the dorsum. The discoloration precisely resembled such as I have seen in scorbutic patients among the Andersonville prisoners, an ecchymosis. But the man was in perfect health, no signs of scurvy. I give his account of the cause of the injury. He was standing with his rifle held by the barrel at arm's length and the butt resting on the ground, when a large shot or shell passed between himself and his rifle without touching either or moving him from his position. Immediately after he observed the discoloration, and was sent to the hospital for fear of internal injury. The case rests upon my evidence of the injury and upon the soldier's account of the cause.

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**ART. VII.—Amputation at the Hip-joint.** By A. E. CAROTHERS, M.D., of Saltillo, Mexico, late Assistant-Surgeon U.S. Volunteers. (With two wood-cuts.)

To determine the conditions which render amputation at the hip-joint necessary, and the propriety of its performance under any circumstances, are

among the most difficult problems in military surgery. The proper treatment to be adopted in a case of gunshot fracture of the trochanters and neck of the femur is a grave question, especially if there be serious secondary lesions of the great vessels complicating it. The difficulty of its solution is little lessened by a consultation of authorities; some whose opinions are of the greatest weight standing arrayed on each side of the question; some regarding it only justifiable as a secondary operation, after a tolerance of suffering and suppuration has been established; others advocating recourse to it after reaction from the original injury has been established and before the vital forces have been exhausted by a uselessly prolonged period of pain, confinement, and suppuration; others again proposing to operate primarily, believing that the use of chloroform obviates the shock to such a degree as to render it safe, and not subjecting the patient twice to the shock of a grave injury; while many condemn it under all circumstances, trusting, in cases not suitable for resection, to the judiciously aided efforts of nature for a more favourable result than is predicted by the published statistics of the operation with their appalling list of deaths.

The wonderful results obtained from carbolic acid and other antiseptics in the conservative field of surgery of late years will do much to strengthen this latter opinion, or at least to circumscribe the list of cases demanding this terrible mutilation of the human body.

I was most forcibly impressed with these reflections after reading the two admirable papers on this and its associate operation, issued from the Surgeon-General's Office U. S. Army; viz., Circular, No. 7, of July 1st, 1867, on Amputation at the Hip-joint, and Circular, No. 2, of January 2d, 1869, on Excision of the Head of the Femur, which are among the most valuable contributions on this subject to surgical science that have ever been presented to the profession.

The opinions expressed in these reports are those of the leading surgeons of the U. S. Army in the late war, by whom the operation and the various substitutes for it were put into practice as extensively and under as fair conditions for determining their relative value, as by any other body of men in the history of surgery. As such, their opinions are entitled to the highest consideration; but to what widely different conclusions these distinguished gentlemen have arrived, and how little they have settled these questions, can only be appreciated by a perusal of their letters as published in the works referred to.

We are all aware of the fallacy of surgical statistics; but such is the practical spirit of the age that the world and the profession demand facts, not theories, and none will deny that by an intelligent analysis of a large number of cases practical deductions of great value may be arrived at. It is with the view of adding to the reliable statistics of this debatable operation that I present the following account of a case which has recently occurred in my military practice in the late revolution in this country,

leaving theoretical discussions of it to men of abler minds and greater leisure than I possess:—

Juan Blanco, aet. 14 years, a native of Guadalajara, Mexico, serving as orderly to Lieut. Ribera of the 21st Infantry of the Line, Mexican Army, was wounded by a conical musket-ball at the storming of the city of Saltillo, Mexico, on the morning of the 5th of December, 1871. He was carried the same day to the field hospital of the insurgent army, where he lay upon the ground with little or no attendance for several days. He was then removed to the military hospital of this city, where I first saw him on December 13th, he being pointed out to me by the surgeon in attendance as a hopeless case. On the night previous he had suffered a severe secondary hemorrhage, in which the blood ran off the bed and along the floor a distance of several yards, in consequence of which he was greatly debilitated and had fainted several times.

Determined to make an attempt to save his life, I asked and obtained permission to remove him to my house, which was done the same day. Upon inquiry I learned that he had had no evacuation from the bowels for eight days, or since the reception of the wound, during which time he had eaten very little food. An enema was given, which operated well, and he was allowed to rest the next day, being fed with nourishing broths, no attempt being made to change the dressing of the wound for fear of further hemorrhage.

On the morning of December 15th a consultation was held, at which Drs. Smith, Luckie, Barreda, and Fernandez were present. We found a gunshot wound in the upper portion of the left thigh, which was stuffed with lint, saturated with liquor ferri perchloridi, firmly bound down by a compress and roller. Upon removing the lint the wound was observed to be in a sloughy condition and quite offensive. From the account of the

ward surgeon, and the appearance of the wound, it was thought that the hemorrhage had arisen from the profunda femoris artery, and this opinion was subsequently verified.

A most extensive fracture of the trochanters and upper half of the left femur was discovered, the ball having entered the thigh at the middle of the inner margin of Scarpa's space behind the femoral artery, after having first nearly divided the penis; crushing the bone to fragments in its course, and making its exit just below the trochanter major. (See accompanying representation of the bone.)



In view of the great extent of the injury to the bone, and of the secondary hemorrhage from so important an artery as the profunda femoris with the almost certainty of its recurrence, and the difficulty of the deligation of the vessel, it was decided to amputate through the trochanter or neck of the femur as the only reasonable chance of saving life, and I performed the operation by inserting a long knife through the track of the wound, and cutting outward, making a short anterior, or rather antero-exterior flap; reinserting the knife, and making a long and thick postero-interior one, being guided in my selection of the incision and flaps by the peculiarities of the wound, making them from the tissue least injured by spicula of bone, and inflammatory and suppurative action.

Upon examining the remaining fragment of bone, I found that the capsular ligament was detached from its adhesions along the upper margin of the posterior inter-trochanteric ridge, which had been almost entirely carried away by the ball, along with the lesser trochanter; and that the neck of the bone was becoming carious, being involved in the same diseased action which had divided the artery, and was manifest at the wound of entrance.

Convinced now that the diseased action extended to within the joint, and of the worse than uselessness of leaving the head *in situ* to become a source of future irritation, I at once disarticulated and removed it, cutting away the capsular ligament close up to the acetabulum. Finding this latter in a healthy condition, I terminated the operation by slightly trimming the flaps to suit the altered operation, being careful to remove every fragment of tissue showing the least sign of disease. The wound was then carefully washed with a solution of chloralum, one ounce to four ounces of water, and, as soon as all bleeding had ceased, it was closed with silver-wire sutures, leaving drainage outlets at upper and lower angles, and dressed with lint wet in the same solution.

I was ably assisted in the operation by the gentlemen above named, and Messrs. Quintanilla, Elizondo, Cortesan, and Lozano, medical students from the school in Monterey. Chloroform was administered to complete anaesthesia by Dr. Smith, and was well borne.

Thanks to the efficient aid of my assistants, less blood was lost than in an ordinary thigh operation. No tourniquet was used, nor was compression of the abdominal aorta attempted, Dr. Barreda compressing the femoral artery at the crural arch with the thumb of one hand, while with the fingers of the other he followed the knife as I made the anterior incision, grasping the artery as it was divided and retracting the flaps over the groin; another assistant standing ready to do the same with the branches of the ischiatic, circumflex and gluteal, which were ligated on the moment, the femoral being tied last.

When it is considered that the patient was a slim delicate boy, worn down by suffering, suppuration, and the neglect consequent upon the defeat of the troops to which he belonged, the occupation of the city by the hostile forces, and the lack of efficient hospital organization common to insurrectionary armies; it is not surprising that the shock of the operation was great. His pulse, which had been about 130 before the operation, disappeared entirely at the wrist for from twelve to sixteen hours; cold clammy sweat stood in bead-like drops on the skin, the breathing became sighing and hollow, and it was only by the use of the most vigorous measures that he was roused from this state of collapse. One ounce of brandy was ordered every two hours, or rather "ad libitum" with two grains of musk and eight grains of carbonate of ammonia every two hours, and artificial heat applied to the extremities, under which treatment a slow but steady reaction was established by the morning of Dec. 16. 6 A.M. Pulse feeble, 160; tongue dry; great thirst, anxiety, restlessness, but no delirium. Gave an eggnog and ordered Leibig's extract of beef ad libitum; continued brandy, one ounce every three hours. Nothing of note occurred during the day, the reaction steadily improving, the pulse gaining in volume and diminishing in frequency. 9 P. M. Pulse 140, much fuller; tongue more moist; less thirst; less pain; wound cool, and appears to be glued together by adhesive inflammation. Some sanguineous discharge from angles of wound; continue treatment.

17th, 9 A.M. Pulse varying from 135 to 145; temperature in axilla 100.5; appetite good; general condition improving. 9 P.M. Has eaten well and passed a very good day, but in the evening the young vagabond induced the servant to give him more than his allowance of brandy, and he is gloriously drunk.

18th, 9 A.M. Pulse 150; temperature 102; is clearly no better from last night's indiscretion; wound however cool; looks well and appears to be adherent; ordered boiled chicken, extract of beef, eggnog, and brandy in greater moderation than yesterday. 9 P.M. Has passed a very comfortable day; ate half a boiled chicken at dinner with appetite. General condition much the same, but pulse rather weaker than in the morning. Wound discharging well; pus at both outlets. Has had a natural action of bowels spontaneously. Smokes cigarettes with great satisfaction.

19th, A.M. Pulse 150; temperature 101.5; good appetite; condition improving. Removed all of the sutures, and found union by first intention complete throughout the wound except at the angles, where bits of lint had been inserted to maintain outlets for sanguineous exudations, and the synovia, which I anticipated would be secreted from the acetabulum upon its being opened, but of which no appearance has existed in the discharges which now consist of laudable pus. Supported the wound with strips of adhesive plaster. Injected orifices at angles of wound with the solution of chloralum twice a day; continue treatment. 9 P.M. Has eaten during the day a large piece of beef-steak, part of a chicken, bread, rice, extract of beef, etc. Pulse 138.

20th, 9 P.M. Has passed a good day, and is becoming very ill natured. Pulse 138.

21st, 9 A.M. Pulse 145; temperature 102.2; is slightly feverish, due to having no action of the bowels for several days. Ordered a simple anema, which did not act. Gave an ounce of castor oil, to be followed by another enema. 9 P.M. Has had a good action of purge, and is better. Pulse 140.

22d, 9 A.M. Pulse 132; temperature 101.2; condition decidedly improved. Stopped brandy, and ordered two pints of ale daily, instead.

23d, 9 A.M. Pulse 150; temperature 101.5. The wound does not look so well to-day, the granulations being somewhat pale and the pus scanty though well formed. The cicatrix opened for about an inch and a half at its outer end when I removed the adhesive strips. Upon investigation it was found that he has deceived me as to his food, taking much less than I supposed. Made no change except to personally superintend his meals.

24th, 9 A.M. Pulse 138; temperature 101.5; the granulations in the wound a little more florid. Changed the chloralum dressing for R acid carbolic 3j, Ol. olivæ 3j. Commenced giving elixr Calisayaæ, one ounce three times daily. The bowels act once in two days, the evacuations being consistent and show good digestion. The patient sat up in bed to-day, and amused himself by drawing pictures on a slate.

25th. Pulse 138; temperature 102. Removed all the ligatures but two. Wound rather pale, dressed with carbolic acid 3j, resu cerate 3j.

26th. No change. Pulse 136; temperature 101.8; continue treatment.

27th. Pulse and temperature same as yesterday. Had considerable griping in the bowels. Gave tr. zingiberis and tr. opii camph. Appetite not so good as heretofore, but appearance of wound improved. Another ligature came away.

28th. Pulse 134; temperature 101. The last ligature, that of the

femoral artery, came away to-day. General condition improving, and granulations in wound becoming again florid and firm; appetite better; no gripping; bowels act once in twenty-four hours.

29th. Pulse 126; temperature 100.8; steadily improving; wound rapidly filling up. The patient sat up in a chair to-day for first time.

The boy continued improving, sitting up a few hours daily, and rapidly gaining strength until January 15th, one month from the date of operation, when he, for the first time, left his bed on crutches, with the aid of which he soon learned to walk.

The wound was firmly closed, except at the two angles, where a slight discharge was kept up for another month or so by a few small spicula of bone which had been buried among the tissues, escaping notice at the time of operating, and which made their way to the surface from time to time, and were extracted or discharged with the pus.

On February 3d he walked from my house to the hospital, a distance of four squares, all the way up hill, without assistance, where he remained until July 20, 1872, when a photograph (represented in the accompanying cut) was taken, and on the day following he left for the city of Mexico with the cavalry brigade of Gen. Ribera, in perfect health and with his stump entirely healed, seven months and six days after the operation.

During the time of his stay in the hospital nothing noteworthy occurred, except that in April he had an eruption of a herpetic character at the margin of the cicatrix, the outer end of which, in consequence, opened for about an inch and a half, rendering it necessary to support it with adhesive straps, under which treatment, combined with an improvement in diet and ventilation, and frequent baths in cold water, it soon firmly closed, and contracted to a surprisingly small line.

At the risk of wearying the patience of my readers I have reported this case in detail from the notes in my case book, and I only regret that I did not get the temperature of the first and second days, owing to not having my axillary thermometer at hand.

I wish to direct attention to several points of treatment, and certain surrounding circumstances, which seem to me to have contributed to the favorable result, and explain the remarkable rapidity of recovery, this boy being the first out of eight amputations of knee-joint and thigh, which I made at that time, who sat up on a chair or walked with crutches.

The operation in itself was that calculated to cause the least loss of



blood from the facility and rapidity of its performance, no attempt being made to control hemorrhage by mechanical appliances, always more or less imperfect, but dependence being placed upon the dexterity of the assistants in following the knife with their hands, grasping the flap as it was made, and stopping the orifices of the bleeding arteries with the tips of their fingers as soon as they were discovered.

The liberal use of stimulants and nutrients on a scale and in view of symptoms, that would scarcely meet the approval of those unaccustomed to hazardous operations upon soldiers worn down by physical and moral causes, needs only to be referred to to receive its just share of credit in the result.

The use of chloralum as a dressing, which in my hands has been of great service, and I think its use contributed largely to the success of this case, securing union by first intention, preventing diffuse suppuration, and destroying all septic influences. My experience has not yet been sufficiently great in its use to warrant my drawing a comparison between it and carbolic acid, but, so far as it goes, in hospital gangrene, erysipelas, and simple phagedena, it leans decidedly in favour of the chloralum.

The extraordinary rapidity of recovery and the absence of all untoward symptoms in the progress of the case are attributable to the causes referred to, combined with the youth of the patient, the climate of the place in which the operation was performed, and the race to which the patient belonged. The lower order of Mexicans, in whom the Indian blood predominates, or is almost pure, bear surgical operations better than any other people I have seen; due, perhaps, to their simple and temperate life, mainly in the open air; their stoicism and complete resignation to the "*"voluntad de Dios,"*" securing a tranquil state of mind. This place being over 5000 feet above the sea level, situated in a mountainous district noted for its salubrity, the climate is singularly favourable to surgical operations.

As to the operation selected I desire to call attention to certain advantages derived from it, premising that I claim no credit for originality in it, as I was almost compelled by the peculiarities of the wound to adopt it as the best means of securing sound flaps. From the oblique character of the wound its outer angle is sufficiently low when the patient is on his back to admit of complete drainage of discharges from the deepest part of the wound, the acetabulum, while, at the same time, it is sufficiently in front to facilitate the dressing, leaving the cicatrix subsequently under the patient's own control for washing, dressing, etc.

The stump obtained by making the long flaps from the posterior and inner part of the thigh presents great advantages as affording a full round buttock to the patient, on which he can sit with ease and comfort undisturbed by the cicatrix, which is entirely out of the way; as will be seen by the photograph; and in the event of the adaptation of an artificial limb it is sufficiently high to be out of the line of pressure of the weight

of the body, at the same time being in the softest part of the stump; and not exposed to pressure over any bone.

Although not prepared to go into a disquisition upon, or defence of, this operation, yet I will say that I can conceive of no other procedure which would offer a chance of life equal to it in a case like the one I have just reported; in which the bone was extensively fractured to within the capsular ligament; or at least to its very insertion, the neck of the bone carious to the epiphysis from an extension of the sloughing action in the soft parts, the joint unquestionably opened; and where a secondary hemorrhage from so important a vessel as the *profunda femoris* had been caused by sloughing of the wound.

The deligation of the *profunda* is in itself a serious and difficult operation, requiring a high order of operative skill, and in this case would have probably been useless, as will be admitted by all who have seen such cases die after repeated hemorrhages, from the diseased action involving the coats of the artery above the ligature.

The ligature of the femoral artery at the crural arch, the nearest point of safety to the slough, would, in all probability, condemn the limb to gangrene. The excision of the head and nearly half of the shaft of the femur, is almost as formidable an operation as the amputation even, under favourable circumstances, and would have been useless in this case, as offering no relief to the principal danger, that of a return of the hemorrhage.

To expectation the same argument applies, so what can the surgeon do but amputate? That by so doing he will offer the unfortunate patient a fair chance of life is shown by this case.

If any conclusions can be founded on the foregoing report and observations, they are, that where gunshot fracture of the trochanters, neck or head of the femur is complicated by wound of the great vessels of the thigh, or where they are included in a slough of the wound causing secondary hemorrhage; it is the duty of the surgeon to give the patient the chance for life that lies in *amputation at the hip-joint*.

SALTILO, MEXICO, August 6, 1872.

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ART. VIII.—*Report of Three Cases of Choroiditis following Cerebro-spinal Meningitis.* By CHARLES S. BULL, M.D., Assistant Surgeon to the Manhattan Eye and Ear Hospital, New York.

THE following three cases of choroiditis from cerebro-spinal meningitis differ so widely in the ophthalmoscopic appearances from each other, and in some of their subjective symptoms, that I deem them worthy of publication.

CASE I.—F. A., aged 12, a native of the United States, was brought to me July 18th, 1872, with the following history. The patient has always been a type of robust health, and was very tall and well developed for his age. On the 6th of February last he was attacked with violent headache and nausea, and soon the symptoms pointed to a well-marked attack of cerebro-spinal meningitis. He was confined to his bed for five weeks and was not able to leave the house for three weeks longer. Unconsciousness set in on the third day, but there were intervals of consciousness, and in them the patient always complained that his eyesight was very much affected. He never complained of any diminution of hearing, and it was only during his convalescence that he was found to be entirely deaf. When he presented himself to me the deafness was complete, but he intimated in writing that his vision was better than it had been. The eyeballs were freely movable in all directions, and the pupils of both eyes reacted promptly to the influence of light. In the right eye, vision was  $\frac{20}{C}$ ; in the left  $\frac{20}{LXX}$ . In the right eye the field of vision was defective

in the upper and outer quadrants; in the left it seemed to be concentrically limited pretty symmetrically. After atropia had been instilled, the following changes were noted: R. E. the optic disk was congested over the inner half of its surface, and somewhat oedematous; the outer half had a dirty gray colour and was surrounded by a border of pigment; arteries reduced in calibre but not markedly so; veins congested and tortuous. The retina was apparently normal with the exception of some oedema to the inside of the papilla. The choroid, in its inner and lower part, was strewn thickly with small yellowish spots of exudation, most of them very minute, but some quite large, and so irregular in shape that they had probably resulted from a coalescence of a number of smaller spots. The larger masses were almost all perceptibly elevated above the surrounding surface and pushed the retina before them, and two of them showed a refraction of +24, the rest of the fundus being emmetropic. The retinal vessels could be seen running over these spots of exudation, and in their neighbourhood the choroidal stroma was markedly atrophied. There was very little pigment to be seen anywhere and the masses of exudation were much smaller in size and fewer in number as the equator was approached. In the *left eye* there were no large masses of exudation, but the number of smaller ones, about the size of an ordinary pin-head, seemed to be countless, and were spread with great regularity all over the fundus. The optic disk was but little altered from the normal appearance, and the arteries were perhaps a trifle smaller in calibre. The retina was normal, there not being a trace of oedema. The refraction of this eye was also emmetropic. In this case the intracranial inflammation does not seem to have travelled down the optic nerve to the eye, and set up a neuritis descendens, but appears to have affected the stroma vessels primarily, and the optic nerve only became involved indirectly in one eye, and in the other eye it had apparently remained intact.

CASE II.—A. McD., aged 4, of healthy parents, was brought to the Manhattan Hospital in the latter part of May, with the following history. On the 23d of March, the child, having previously been perfectly well, was suddenly attacked with vomiting and high febrile action, which was quickly followed by numerous convulsions. On the fourth day after the disease

commenced, the mother noticed a yellow gleam from the left eye, which increased in brightness and distinctness for several days, since which time it has remained about the same. The right eye has never been involved. Two weeks after the commencement of the disease, the right mastoid process became swollen and painful, and the next day there was a purulent discharge from the right ear, which lasted about two weeks and then ceased, and has not since recurred. On examination the eyeball was found to be normal in size and position, and its excursive movements were perfectly free, but the tension was markedly diminished. The iris was normal in appearance, but the pupil was widely dilated and insensible to light. The cornea and aqueous humour were perfectly clear, and the yellow appearance of the fundus was very distinct. On ophthalmoscopic examination the lens and vitreous were found to be perfectly clear and normal. The retina was normal in appearance, but was elevated very irregularly above its ordinary plane by the subjacent mass. The latter was of a bright yellow, of the same hue throughout, and seemed to occupy the whole extent of the choroid, except at the extreme periphery, where portions of atrophied choroidal stroma could be seen. The retinal veins passed up and down over this irregular exudation and were very small in calibre, and their adventitia very much thickened. The optic nerve entrance seemed somewhat smaller in diameter than normal, as if the choroidal exudation had encroached upon it by pressure, and was of a brilliant white colour, as if the seat of advanced atrophy. The refraction of the fundus varied between +48 and +16; the refraction of the fellow eye was emmetropic. The amaurosis was complete. The case seems to me of unusual interest, as the retina was apparently but little involved. The atrophic appearance of the optic disk is evidently a secondary process, due to pressure, not only from the side of the infiltrated choroid, but from exudation into its sheath and probably between its fibrillæ.

**CASE III.**—Delia B., 2 years of age, was brought to the N. Y. Eye Infirmary on the 14th of May last with the following history. The child had been healthy up to about two months previous to her admission, at which time she was seized with a high fever, followed by a series of convulsions. The mother brought a note from the physician who had attended the child in her sickness, certifying that the patient had suffered from cerebro-spinal meningitis of an aggravated form, the convulsions having been particularly violent. The child had been unconscious at intervals, but nothing wrong had been noticed about the eyes until convalescence set in, when the mother discovered that the child did not take notice, and that the pupils of the eyes were widely dilated. The disease had lasted six weeks and left the patient very emaciated. On examination the pupils of both eyes were seen to be extremely dilated and completely insensible to light. There was no reflex from the fundus, and, with the exception of the pupils, there was nothing abnormal to be seen about the eyes. On ophthalmoscopic examination, the optic disks were seen to be of a bright, glistening white colour; the refraction of both eyes was emmetropic, and the atrophic excavation, which occupied nearly the whole of each papilla, had a refraction of —24. The lamina cribrosa was distinctly visible, and the arteries were of a thread-like tenuity, and could only be traced for a short distance beyond the periphery of the disks. The veins were also markedly diminished in calibre, though they could be followed as

far as the ora serrata. Both eyes presented the appearance of pronounced atrophy of the optic nerves, but whether this had resulted from a neuritis descendens following a basilar meningitis, or from intracranial pressure during the height of the meningitis, it was almost impossible to say. Still the process had lasted but two months, dating from the onset of the inflammation, and as there were absolutely no signs of any proliferation either in the papilla or retina, which would naturally result from an interstitial neuritis, and as such proliferation could hardly fail to leave behind it some traces of its presence; I am inclined to the belief that the nerve atrophy was the result of pressure. It would be interesting to know whether such pressure had occurred over the course of the optic tracts, or whether its situation was more posterior, and involved the optic thalami or crura cerebri. In this third case the hearing was apparently unaffected, and hence the intracranial pressure was probably limited in extent.

NO. 7 WEST 46TH ST., NEW YORK.

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ART. IX.—*Two Cases of Syphilis, in one of which the Primary Lesion was seated on the Internal Surface of the Eyelid, in the other on the Cheek.* By F. R. STURGIS, M.D., Assistant Surgeon Manhattan Eye and Ear Hospital, New York City.

H. B., 22 months old, was taken about the latter part of May, 1871, to my friend, Dr. E. G. Loring, for a curious affection of the inside of the right lower lid and at the outer angle. The following is Dr. Loring's description of the symptoms.

Lid swollen and inflamed; eye bloodshot at outer canthus. On everting the lower lid, a dusky-red papule was visible; this speedily changed into an ulcer with a clean granulating surface of a reddish colour. This ulcer was not indurated at first, and there being no reason to suspect syphilis, the glands were not examined. The mother says that the swelling of the lid began two weeks before the child was seen by Dr. L.

This ulcer was repeatedly touched with arg. nitr., but without benefit.

In the latter part of June, 1871, he had a febrile attack, during which an eruption appeared upon his stomach and chest.

I saw him for the first time in the middle of July, 1871. The lid was red, swollen, and indurated; this latter well marked.

On everting the lid a red granular ulcer was seen at the lower portion of the outer canthus, covered here and there with the opaline spots which mark the transition stage of the primary lesion into a mucous patch. On the body, arms, and legs, a roseola in the stage of decline. In the mouth and on the tongue, mucous patches in full blast.

Convinced what the trouble was, I sought the solution of it in the mother, but an examination made of her then and subsequently has shown no signs of disease. I then questioned her about the child's playmates and companions, and learning that one of her sisters, who was very fond of the child, was in the habit of kissing him, I asked the mother to bring

her to me, which was done, but with no better success than in the mother's case.

In despair, I then asked for the father. After I had seen him, I was no nearer the solution of the problem. He assured me he had had no venereal disease in his life, and certainly I had no reason to doubt his word. I have, therefore, never been able to find out how the boy's disease originated. I warned the mother about the danger of contracting the disease from kissing the boy herself, or allowing any one else to do so, until I was satisfied that he had no longer any patches in the mouth. This advice was disregarded, however, and on the 13th February, 1872, the mother came to me, stating that her little girl, six years old, had a sore upon her left cheek, which had begun a short time before as a red papule, "looking like a flea-bite," as she described it. I saw the child on the 16th day of the same month, and found a typical chancre.

The induration of its base was not well marked, but that of the submaxillary and post-auricular glands was characteristic. She subsequently had roseola, mucous patches, etc.

These cases are interesting from their seat and as occurring in patients so young. Although not unknown in these regions, primary lesions of the eyelids and of the cheeks are far from being common, as may readily be seen on glancing at the following tables:—

Table 1. In 472 cases of indurated chancres recorded at the *Hôpital du Midi*, the lesion was seated

On the penis and in the urethra in . . . . .	434 cases.
" scrotum . . . . .	7 "
" peno-scrotal angle . . . . .	4 "
" anus . . . . .	6 "
" lips . . . . .	12 "
" tongue . . . . .	3 "
" nose . . . . .	1 "
" pituitary membrane . . . . .	1 "
" eyelid . . . . .	1 "
" fingers . . . . .	1 "
" leg . . . . .	1 "
" foot . . . . .	1 "
—	
	472

(FOURNIER, *Leçons sur le Chancre*, p. 364.)

Table 2. In 10 cases, the chancres were seated

On the lower lip in . . . . .	4 cases.
" upper lip . . . . .	2 "
" cheek . . . . .	1 "
" forearm . . . . .	1 "
" fingers . . . . .	1 "
" nipple . . . . .	1 "
—	
	10

(BRYANT, *London Lancet*, 1868, vol. i. p. 525.)

Table 3. In 93 cases, the chancres were seated

On the genital organs in	.	.	.	.	.	.	.	4 cases.
" upper lip	.	.	.	.	.	.	.	27 "
" lower lip	.	.	.	.	.	.	.	29 "
" tongue	.	.	.	.	.	.	.	11 "
" naso-labial groove	.	.	.	.	.	.	.	1 "
" face { chin, forehead, } and cheek. }	.	.	.	.	.	.	.	4 "
" finger	.	.	.	.	.	.	.	2 "
" upper eyelid	.	.	.	.	.	.	.	2 "
" gum	.	.	.	.	.	.	.	2 "
" labial commissure	.	.	.	.	.	.	.	7 "
In the nose	.	.	.	.	.	.	.	2 "
On the tonsil	.	.	.	.	.	.	.	1 "
" palate	.	.	.	.	.	.	.	1 "

93

(PUCHE FOURNIER ET ALII, quoted in Fournier, *Etude sur le Chancre céréphalique.*)

Table 4. In 31 cases, the chancres were seated

On the lips in	.	.	.	.	.	.	.	14 cases.
" perineum	.	.	.	.	.	.	.	2 "
" tongue	.	.	.	.	.	.	.	2 "
" anus	.	.	.	.	.	.	.	2 "
" pubes	.	.	.	.	.	.	.	2 "
" groins	.	.	.	.	.	.	.	1 "
" thigh	.	.	.	.	.	.	.	2 "
" uvula	.	.	.	.	.	.	.	1 "
" eyelid	.	.	.	.	.	.	.	1 "
" nose	.	.	.	.	.	.	.	1 "
" forehead	.	.	.	.	.	.	.	1 "
" internal angle of right eye	.	.	.	.	.	.	.	1 "
" pituitary membrane	.	.	.	.	.	.	.	1 "

31

(AIMÉ MARTIN, *De l'Accident primitive de la Syphilis constitut.*)

Table 5. In 21 cases, the chancres were seated

On the lips in	.	.	.	.	.	.	.	17 cases.
" tongue	.	.	.	.	.	.	.	3 "
" labial commissure	.	.	.	.	.	.	.	1 "

21

(BUZENET, *Le Chancre de la Bouche, etc. Thèse de Paris, 1858.*)

Table 6. Of 373 cases, the chancres were seated

On the penis and in the urethra in	.	.	.	.	.	.	.	342 cases.
" scrotum	.	.	.	.	.	.	.	6 "
" pubic and hypogastric regions	.	.	.	.	.	.	.	2 "
" lips	.	.	.	.	.	.	.	13 "
" tongue	.	.	.	.	.	.	.	4 "
In the anus	.	.	.	.	.	.	.	1 "
On the thigh	.	.	.	.	.	.	.	1 "
" fingers	.	.	.	.	.	.	.	1 "
" gum	.	.	.	.	.	.	.	1 "
" cheek	.	.	.	.	.	.	.	1 "
" groin	.	.	.	.	.	.	.	1 "

373

(BASSEREAU, *Traité des Affec. de la Peau, Symptom. de la Syphilis.*)

Table 7. In 403 cases, the chancres were seated

On the penis in . . . . .	390 cases.
“ scrotum . . . . .	3 “
“ pubes . . . . .	2 “
“ lips . . . . .	5 “
“ tongue . . . . .	1 “
“ thigh . . . . .	1 “
“ eyelid . . . . .	1 “
	—
	403

(CLERC, *Traité pratique des Mal. veneriennes.*)

Table 8. Out of 113 cases, the chancres were seated

On and in the genitals in . . . . .	75 cases.
On the perineum . . . . .	4 “
In the anus . . . . .	7 “
On the thighs . . . . .	6 “
“ groins . . . . .	2 “
“ lips . . . . .	7 “
“ tongue . . . . .	1 “
“ uvula . . . . .	1 “
In the mouth (no other designation) . . . . .	4 “
On the nose . . . . .	3 “
“ forehead . . . . .	2 “
“ neck . . . . .	1 “
	—
	113

(Idem.)

Table 9. In 130 cases, the chancres were seated

On the genitals in . . . . .	89 cases.
In the anus . . . . .	12 “
On the groins . . . . .	1 “
“ thighs . . . . .	1 “
“ lips . . . . .	10 “
“ labial commissures . . . . .	1 “
“ nostrils . . . . .	2 “
“ breasts . . . . .	9 “
“ undesigned . . . . .	5 “
	—
	130

(ROLLET, *Traité des Mal. veneriennes*, p. 705.)

Besides these tabulated cases, others are reported by various authors. Cullerier<sup>1</sup> gives the plates of two cases of chancres of the lids; Bumstead,<sup>2</sup> one on the internal surface of the upper lid; Desmarres<sup>3</sup> and Lawrence<sup>4</sup> on various parts of the lid, and the writer<sup>5</sup> one on the cheek.

From this it will be seen that out of 1646 tabulated cases of the seat of indurated chancres, it occurred only six times on the eyelids, and three times on the cheeks.

<sup>1</sup> Atlas of Venereal Diseases, translated by Bumstead, plate 14, figs. 2, 3,<sup>2</sup> On Venereal Diseases, 3d ed. p. 415.<sup>3</sup> Maladies de Yeux, vol. i. p. 621.<sup>4</sup> Diseases of the Eye.<sup>5</sup> Medical Record, vol. iii. p. 530.

*Diagnosis.*—In persons so young as these whose history forms the text of this paper, the diagnosis will not always be easy to make; first, from its comparative rarity, and second, from the youth of the sufferers, which would prevent the true character of the lesions from being appreciated. But in one of its peculiarities we are really furnished a means of detecting its true nature, *viz.*, in its position.

Any ulcer seated upon the face, the character of which cannot be determined upon, should at once awaken suspicions of syphilis, no matter who the patients may be, nor their own or their friends' assertions to the contrary.

Syphilis is common to all ranks in life and to all ages, and the primary lesion may appear on any part of the body.

Another point of great importance, of more than any other, perhaps, in forming a diagnosis, is *to ascertain the condition of the glands nearest the lesion.* It not infrequently happens that the induration of the sore is absent or but slightly marked (*parcheminée*); in such a case the diagnosis is difficult. But it is very rare, indeed I may say it never occurs, that glandular induration and that of the ulcer are both absent at the same time. Go, therefore, to the nearest chain of glands for the information that the ulcer has denied, there the answer will probably be given.

There only remains one other point to speak upon, and that seems almost superfluous. I refer to the possibility of these cases being congenital. It is unlikely; first, because both parents were examined, were found free from disease, and denied ever having any. This, however, I have elsewhere shown, goes for very little, inasmuch as patients, at the time of the examination, may have arrived at the period of incubation, or repose between the disappearance of one train of symptoms and the advent of the next, and show absolutely nothing. The strongest proof against it lies in the lesions themselves; congenital syphilis does not commence with a primary lesion, nor does it lie latent for two years before declaring itself, and upon these grounds, if on no others, the question of their being congenital may be entirely disposed of.

16 WEST 32D ST., NEW YORK.

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ART. X.—*A Case of Dermoid Tumour of the Cornea.* Reported by GEORGE STRAWBRIDGE, M.D., Lecturer on Diseases of the Eye and Ear in the University of Pennsylvania, Ophthalmic Surgeon to the Presbyterian Hospital in Philadelphia, etc. (With a wood-cut.)

MISS M. presented herself on account of a tumour of the left cornea, which was congenital and characterized as follows: Arising on the outer

lower quarter of the cornea, at a distance of three millimetres from the corneal edge, and having a diameter at its apex, which was rounded, of three millimetres. It extended on the eyeball between the inferior and external recti muscles, spreading out sufficiently to fill up the space between these two muscles, and passing beyond the juncture of the anterior and posterior segment of the eyeball.

The colour of the tumour at its apex was of a pearly-white, and in the median line, towards its base, the same colour prevailed, although gradually changing into a more yellow hue as the periphery of the growth was approached, where it finally became markedly yellow.

On the corneal portion of the growth a number of minute hairs were seen, four or five of which were of a dark colour and larger in size, while the remainder were entirely devoid of pigment. Several large veins traversed the growth at its base, and the mucous membrane covering it was thickened. (See fig.)

The increase in the size of the tumour had been very slow, bearing a relative proportion to the increase of the body, and its removal was desired principally for cosmetic reasons, and also with the hope that the eye, which presented some asthenopic symptoms, might be benefited.

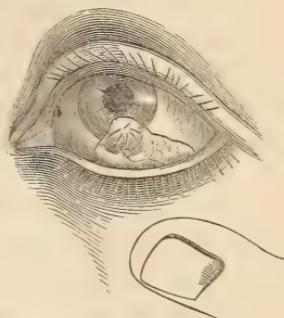
The movements of the eyeball were entirely normal, and the acuity of vision in no way affected.

The removal of the growth was accomplished by a careful dissection of it from the surface of the cornea, made by a small Graefe cataract knife, the apex of the tumour being firmly grasped by a pair of forceps; great care was taken not to penetrate too deeply into the corneal tissue. This dissection was continued backward towards its base, until the tumour was well separated, and a pair of scissors divided the few remaining connecting bands.

Extreme toughness of the corneal portion was noticed, the knife cutting through it as through fibrous tissue, and at the same time it was found closely adherent, while, on the contrary, the sclerotic portion presented no difficulty in its separation. No great amount of bleeding followed its removal, and the after-treatment consisted in the application of a pressure bandage for four days, and then a green shade, and at the end of a week the patient was allowed out-door exercise. At the present time no trace of the growth remains, save a slight corneal opacity at its former seat.

Examination of the corneal portion of the growth showed all the characteristics of true skin, which became gradually lost in the sclerotic portion, which was made up to a great extent of adipose tissue.

Similar growths have been reported by a number of observers. Ryba,<sup>1</sup> in the year 1853, made a summary of the cases of dermoid tumour of the cornea reported up to that time, twenty-seven in number, occurring on the human eye, three on oxen's eyes, and four on the eyes of dogs.



<sup>1</sup> Ryba, Prager, Viertel Jahrschrift, 1853, Bd. iii. 1.

Tumours of this kind are also reported by Graefe,<sup>1</sup> Virchow,<sup>2</sup> Arlt,<sup>3</sup> Mackenzie, White Cooper,<sup>4</sup> W. T. Taliaferro,<sup>5</sup> Hulke,<sup>6</sup> and H. R. Swanzy.<sup>7</sup>

Dermoid growths were formerly known under the name of "warts," and confounded with many other forms of tumours. "They occur most frequently on the lower outer portion of the cornea, then on the upper corneal border, more rarely on the inner corneal border. Cases are also reported occurring in the scleral conjunctiva at the inner palpebral angle: as a rule, they will be found in the broad zone lying rather beneath the horizontal meridian of the eyeball than above it, in the direction of the zone of the lid commissure." (Ryba.)

They vary in size from that of a grain of pepper to a bean—round or oval in form, having a soft sponge-like consistence, or, on the contrary, they may be tough, and of a hardness like cartilage.

Their colour varies also greatly; the greater number are found to be of a white or yellowish-white hue, less frequently they are found red, reddish-brown, or very dark brown. Their surface is often smooth, or it may be like a raspberry or strawberry, lobulated, and with, or rarely without, a number of delicate, short, transparent, or sometimes coloured, hairs projecting from them. These growths consist of connective and elastic tissue, covered by a layer of thick epithelium, in which the hair follicle is placed; sudoriferous and sebaceous glands are often found together with fat cells. They are almost, without exception, congenital, and grow in proportion to the rest of the body. (Ryba, Fischer, E. Muller, Graefe, Ammon, Virchow.)

The origin of these peculiar growths, as they are always congenital, must be found to a great extent in the conditions attending the development of the foetus. Ryba, who has spent much time in their study, gives the following plausible explanation:—

It is well known that the conjunctiva in early foetal life corresponds in its texture entirely with the skin covering in general. That portion covering the eyeball becomes gradually thinner, and at about the tenth week, elevates itself, at the upper and lower orbital borders, into folds, which develop into two skin folds to form the rudimentary eyelids, and towards the end of the third, or commencement of the fourth month, they have widened themselves sufficiently to come in contact with each other and to entirely inclose the eyeball. For this reason it is clear why the median horizontal zone of the eye, in whose circuit these peculiar

<sup>1</sup> Archiv für Ophthalmologie, vii. 2, page 3, x. 1, page 214.

<sup>2</sup> Archiv für Pathologische Anatomic. Sechster Band. Heft. 4, 555.

<sup>3</sup> Arlt's Krankheitender Binde und Hornhaut, page 170.

<sup>4</sup> London Med. Gaz., Nov. 1841, page 278.

<sup>5</sup> Am. Journ. Med. Sci., July, 1841, page 88.

<sup>6</sup> Ophth. Hosp. Rep., vol. iii. p. 332.

<sup>7</sup> Dublin Quarterly Journal of Medical Science, May, 1871.

growths are always found, remains the longest uncovered by the eyelid. The general skin covering acquires its fully developed characteristics as foetal life draws to a close, except the inverted portion of skin which develops into mucous membrane to form the conjunctiva. Now if we suppose a case where the two rudimentary lids do not finally widen sufficiently to form a covering over the eye, but leave an intermediate space where the eyeball is exposed, then at this point the membrane covering the eyeball will not develop into mucous membrane, but into a membrane resembling skin, and will fill up the gap between the eyelids by, as it were, a third lid; so that, by this explanation, the corneal dermoid might be considered an attempt towards forming a rudimentary eyelid. And Ammon and others have reported cases of coloboma of the eyelid, where a dermoid growth was found filling up the gap.

*Treatment of these tumours.*—They should be removed as soon as practicable, as they become larger, and, especially if covered with hair, act as irritants to the eye, and for this and cosmetic reasons their removal is indicated; and especially as the operation is not a difficult one, and is rarely followed by bad results. Care should be observed not to cut too deeply into the cornea in their removal, as from this cause corneal suppuration has occurred.

A slight corneal opacity is always left after the operation.

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ART. XI.—*Treatment of Threatened Abortion by Hypodermic Injections of Morphia.* By A. B. ISHAM, M.D., of Cincinnati, Ohio.

IT is the design of this paper to treat the subject of threatened miscarriage from a clinical stand-point, where the hazard to the mother is remote, while the life of the foetus is in imminent danger. All questions, then, not relating to the preservation of the offspring, are set aside.

Upon the question of preventing abortion after the occurrence of well-marked bearing-down pains, dilatation of the os or hemorrhage, authorities vary somewhat, though the weight of authority is indeed adverse to the chances of preserving the foetus under the conditions considered; yet while many authors admit that our efforts in this direction may sometimes be crowned with success, it is the universal verdict that such result is exceptional. The only conditions generally acknowledged as hopeless are fetid discharges, and partial protrusion of the foetus or its membranes through the os. Even in the former event, if the prospects be not favourable for a speedy expulsion of the womb contents, we may put a stop to uterine efforts, and indulge a very slight hope that foetal life may not be destroyed;

for there is a possibility that the fetor may be due to other causes than the decomposition of the ovum. Upon this point Cazeaux well observes:—<sup>1</sup>

“For after all, whenever death of the foetus must have been either the cause or effect of the primary symptoms, what do we risk in calming or arresting the uterine contraction? because, as we have already seen, the dead child may remain long within the intact membranes without any unfavourable consequences resulting to the mother. And besides, as it is impossible to ascertain its death with any degree of certainty prior to the fifth month of gestation, we must act in such doubtful cases just as if it were living.”

I have preserved a record of seven cases of menaced abortion, in all of which there existed forcible uterine contractions, hemorrhage and dilatation of the os. In every instance the uterine contractions and hemorrhage were arrested and the os contracted from the administration of morphia, by the mouth and hypodermically, in full doses and at short intervals. In four cases the patients were carried to full term and voided fully developed children. In the three unsuccessful cases expulsion occurred in from three days to two weeks. In two of these cases there was found fetor of the discharges on first examination, so that they may be excluded from the count, as almost necessarily hopeless. Of the remaining cases four out of the five were successful, and of the four three were treated by hypodermic injections of morphia. These cases I submit in detail.

**CASE I.**—G., coloured, æt. 37; five months advanced in pregnancy. December 30, 1869, was kicked and struck in the abdomen by a man. Vomiting; severe and very frequent bearing-down pains; os uteri soft and dilated an inch and a quarter; rather free hemorrhage. Administered a hypodermic injection of  $\frac{1}{4}$  gr. morphia, in twenty minutes another of like quantity, and in twenty minutes more the third, when the pains ceased and the patient fell asleep. Saw no more of her, but learned that she went to full term and was delivered by a midwife of a healthy full-grown child.

**CASE II.**—M. C., mulatto, æt. 32; mother of four children; four and a half months advanced in pregnancy. Previous to this pregnancy had had three miscarriages in succession at about four months. Saw her the morning of May 27, 1870. Stomach very irritable; vomiting and retching. Uterine contractions sharp and regular; os soft and dilated, the size of a half dollar; slight hemorrhage. Gave her two injections of  $\frac{1}{4}$  gr. of morphia each, which suspended the pains. In the afternoon pains returned, when she was given two more injections with the same result as before. Uterus took on expulsive action again in the evening, when three hypodermic injections of  $\frac{1}{4}$  gr. each were necessary to insure quiet.

28th. Made three visits, each time bringing the injections into requisition to govern uterine contractions.

29th. One visit, with two injections, sufficed.

31st. As the irritability of the stomach had subsided, and the pains were not severe, gave two morphia powders of  $\frac{1}{4}$  gr. each by the mouth; after which no more trouble was experienced, and the woman was delivered at full term, October 16, 1870, of a healthy well-developed female infant.

*Remarks.*—Three miscarriages in succession had occurred to this woman,

<sup>1</sup> Theoretical and Practical Obstetric Med., 5th Am. ed., pp. 582-3.

doubtless produced by her own agency. Her discouraged husband was seriously resolved "to quit breedin' with her, 'cause she would drap 'em, spite of everything." She was averse to treatment in this instance, declaring that she did not want children, and, when not under the influence of morphia, notwithstanding repeated injunctions to keep quiet, she would persist in exercising herself.

**CASE III.**—Mrs. C., German, æt. 34; mother of two living children and two stillborn. Called to her April 26, 1871. According to her data there lacked about two weeks of full term. She was suffering severe bearing-down pains, accompanied with gushes of blood in considerable quantity. Os rigid and dilated just sufficient to pass the index finger. Could feel just through the os a thick pulpy substance, which was decided to be the placenta. Administered  $\frac{1}{3}$  gr. morphia by hypodermic injection, which relieved the pains and stopped the hemorrhage. She was delivered May 3d, of a full-grown stillborn male child, by turning, with the aid of Dr. Keyt.

*Remarks.*—In the absence of any forcible uterine contractions the processes of dilatation and delivery were entirely manual. The placenta was implanted half way over the os, and the child perished from hemorrhage, for the foetal heart sounds could be detected nearly up to the time of turning. In the first hemorrhage on the 26th of April the life of the foetus was undoubtedly saved by the prompt exhibition of the morphia injection, and but for the uterine inertia the chances of its being born alive had not been altogether unfavourable.

My cases are only three, it is true. But, as in all the same treatment obtained, they may serve as good a purpose for comparison as a much larger number. Particularly so, as they were all of that class in which the highest obstetrical authority would expect failure; and when, from the employment of other means, in cases marked by symptoms very much milder, I have not a few times experienced failure myself.

All the advocates of opium, with the exception of Tyler Smith, Byford, and Tanner, advise its administration per rectum. This is likely because the irritable stomach so common in cases of threatened miscarriage may not tolerate so nauseous a medicine as opium. In the manner of administration may have been the small measure of success. It is well known that medicaments introduced into the rectum act in a very uncertain manner; and it will be readily seen how opium or its alkaloids, given per orem to a patient vomiting and retching, might fail to avert a miscarriage. Just where these means have failed and will fail again, is where the hypodermic injections would prove invaluable.

It is useless to enjoin quiet. The patient is not likely to be quiet, suffering the pains incident to uterine expulsive efforts, her mind perturbed by fears for her own welfare and that of her child. Too often, too, the fruit of conception is regarded as an incumbrance, which it would be happiness to lose, and constant activity is one of the most popular recipes to the

attainment of such end. Cold applications, leeching and blood-letting, would prove in most instances a waste of precious time, besides at this day such practice would be esteemed a barbarity, and not without some reason.

The prime elements of danger to the life of the foetus are, *first*, muscular contractions of the uterus, and *second*, hemorrhage. The latter most commonly results from the operation of the former; but it matters nothing as to the many and various causes tending to produce these phenomena. Considerations of safety imperatively demand a speedy arrest of uterine muscular action and hemorrhage, securing which, we may go about investigating and correcting the causes with comparative leisure.

The use of morphia by hypodermic injection is the most speedy and certain means we possess of effecting such desiderata. It will do even more. Its influence spreads over the brain, and at the same time that it suspends contraction of the uterine muscular fibres it insures quiet and rest to the whole system, even against the patient's will. It is applicable to any case of threatened abortion, and I believe that its general use would render success at least equal, if not the rule, instead of the exception, as now announced by obstetricians. Of course I am aware that there are occasional individuals who do not well bear the exhibition of opium in any form, but I hold with Byford: "I do not forget, in thus speaking freely about the use of opium, that peculiarities in some persons make it almost useless; yet I remember the utter unreliability of other remedies in these cases, and risk such disagreements."<sup>1</sup>

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ART. XII.—*Notes on Malarial Disorders of the Marañon Valley.*  
By FRANCIS L. GALT, M.D.

IN an article which appeared in the No. of this Journal for April, 1872, the writer attempted to describe an epidemic of a malarial character which occurred at the village of Iquitos, Peru. The present "Notes" are intended to bear some relationship with that article, as showing some other of the unusual expressions of malarial disorders in the same section of Peru.

During the last year, or more correctly the last fourteen months, there has been noticed in this section, more especially in this village, an altogether exceptional amount of disease of a malarial character which has attracted the attention of medical and other observers; beginning from June, 1871, with an epidemic of catarrh, followed by another of "malarial colic" which appeared somewhat scatteringly during the rainy season from November to June, and which has at the present time here and there an

<sup>1</sup> Theory and Practice of Obstetrics, p. 171.

occasional representative, varied also by rheumatism and dysentery, both of a malarial type, and also occasional catarrhs and bronchial irritation. This unusual state of things has supervened without any change whatever in the agricultural development, such as clearing away of forest growth and upturning of the soil.

In this village a hasty and imperfect attempt at street cleaning has been tried some two or three times in the last eight months, but for the most part the original condition of pools and filth remains undisturbed. Nor has there been any immigration to this region to afford to unacclimated systems an opportunity for disease to show itself. The diet and modes of life continue the same all along the river, and it appears that we shall have to look in altered atmospheric conditions for the responsibility of the change in the sanitary character.

It is to be noted that the changes in the meteorological elements of health to be spoken of below have been such as to attract the attention of the most enlightened residents, as well as the dull though observant natives. During the last dry season the want of rain, especially in July and August, extending into September, was the topic of universal conversation as never having been experienced before in the Marañon Valley. The dry season commenced earlier than usual and continued later—from May to November, inclusive. This dryness was attended by unusual heat during the day, and chilliness during the night. The cool spell of some three or four days which occurs along the whole Amazon, appearing on the lower river about May, generally, and here in June, was not noted last year until the 27th of July. It is known in this region as the "*Inviernito de San Juan*," from its falling about the 24th of June generally, the time of the anniversary of the festival of St. John the Baptist, and is looked for with great certainty. I have been informed there that this cool spell has been appearing later for the last four years, and up to the present date, August 11, there have been no signs of it. The mercury last year fell as low as  $19^{\circ}$  C. during one day, and to  $16^{\circ}$  C. the same night—the lowest records made during the year; the yearly average of day temperature being  $26^{\circ}$  C. for the day, and  $23^{\circ}$  C. for the night.

The rise and fall of the waters of the Marañon have presented nothing unusual as regards height or depression within the last twelvemonth. The rainy season of 1871 and 1872 continued later than usual, the past June being altogether unusually noted for the rain-fall, as may be seen from the accompanying table. So late this year did the river remain at high water that the Indians, who generally commence turtling on the "plaias" (sand-beds uncovered by the falling waters) about the first of June, have even up to this date not found much opportunity for pursuing their vocation.

It is also to be noticed that the months of June and July this year have been much more healthful than for the corresponding period last year.

There having been, previous to April of last year, no records of weather  
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kept on the Marañon, it is impossible to make any accurate comparison of meteorological differences as regards relative frequency of winds and storms, barometric pressure, humidity, and rain-fall, though it is probable that the characteristic uniformity of weather in this intertropical district has not been very greatly modified.

The accompanying table is a summary of observations taken by the writer daily at Iquitos for the period therein stated. The observations were taken each day at 9 A.M., 12 M., 3 P.M., and at 9 P.M. The lowest night temperature was recorded by a self-registering spirit thermometer. Under the headings "Direction of Winds" and "Storms," when the number of either was from two points equally, as regards frequency, both are inclosed in brackets.

The "Rainy Days" include all on which any rain whatsoever, no matter how light the shower, fell.

Months,	Year.	Av. thermometer.			Direction of winds.			Direction of storms.			No. of rainy days.	Highest daily av. of ther.	Lowest daily av. of ther.	Highest record of ther.	Lowest record of ther.	Highest daily av. of bar.	Lowest daily av. of bar.	Highest record of bar.	Lowest record of bar.	No. of inches of rain.	Lowest temp. at night.
		Av. barometer.	Av. Wet bulb.	Direction of winds.																	
April	1871	26.8	75.42	24.5	N.E.	{	S.E.	{	N.E.	17	27.5	24.4	29.3	23.6	75.59	75.31	75.74	75.12			
May	1871	25.2	75.49	23.6	S.E.	{	N.E.	{	N.E.	13	27.4	24.2	30.2	22.7	75.74	75.33	75.88	75.12			
June	1871	27.8	75.57	23.1	N.E.	{	N.E.	{	N.E.	16	28.1	24.3	29.4	23.0	75.72	75.44	75.80	75.26	3.13		
July	1871	24.8	75.62	22.9	S.E.	{	S.E.	{	S.E.	11	28.1	19.4	29.5	18.8	75.94	75.43	76.12	75.32	4.27		
Aug.	1871	26.1	75.53	23.6	S.E.	{	S.E.	{	S.E.	10	28.1	20.7	30.4	19.6	75.71	75.30	75.88	75.09	3.94		
Sept.	1871	26.6	75.50	23.8	S.E.	{	N.W.	{	N.E.	8	29.6	24.0	32.4	23.4	75.71	75.27	75.83	75.08	9.33		
Oct.	1871	27.0	75.37	24.6	var.	{	N.E.	{	N.E.	16	28.7	24.4	31.0	24.4	75.50	75.20	75.66	75.03	7.57		
Nov.	1871	27.1	75.31	24.5	N.W.	{	N.W.	{	N.W.	12	29.0	25.5	31.8	23.9	75.45	75.06	75.62	74.96	8.42		
Dec.	1871	26.6	75.44	24.2	N.W.	{	N.W.	{	N.E.	14	29.1	24.5	31.4	23.4	75.65	75.26	75.77	75.18	11.45		
Jan.	1872	26.8	75.42	25.0	var.	{	N.W.	{	N.W.	19	25.2	24.7	30.6	23.8	75.57	75.26	75.73	75.14	10.23	23.2	
Feb.	1872	26.7	75.37	24.8	var.	{	N.W.	{	N.W.	16	28.5	24.7	31.3	22.3	75.55	75.20	75.69	75.05	9.86	23.2	
Mar.	1872	26.0	75.43	24.2	var.	{	N.W.	{	S.E.	19	28.2	23.6	30.4	23.2	75.59	75.21	75.74	75.08	16.00	23.3	
April	1872	26.3	75.44	24.3	S.E.	{	N.W.	{	S.E.	15	28.7	22.3	31.0	21.4	75.67	75.13	75.80	74.99	8.93	23.1	
May	1872	25.7	75.56	23.9	var.	{	S.E.	{	S.E.	19	27.8	23.6	30.2	22.0	75.77	75.26	75.93	75.16	9.99	22.9	
June	1872	25.0	..	23.4	S.E.	{	S.E.	{	S.E.	20	26.9	22.4	29.0	21.4	..	..	..	..	11.77	22.3	
July	1872	25.2	..	22.9	N.W.	{	S.E.	{	S.E.	14	27.0	23.1	29.9	21.0	..	..	..	..	8.87	21.6	

N. B.—Commenced taking rain-fall, June 1, 1871.

“ “ “ night temperature, January 1, 1872.

Barometer was put out of order May 30, 1872, and could not be used further.

This "table" embraces the period in which the greater amount of malarial disease has attracted the attention of the observer here and at other points on the Marañon, though, as before stated in the past months of June and July, as also up to the present date, there has been a great difference as regards amount of disease as compared with last year. Within this period there seems to have fixed itself at this point and at neighbouring places some cause for development of malarial fevers, which has, with-

out precedent, attracted the notice of the medical man. And though there are occurring frank cases of intermittent fever the malarial presence seems to show itself joined with dysentery, rheumatism, bronchial irritation, or complicating some form of skin disease with which the natives of this region are so plagued.

From what I have been able indirectly to learn, the condition of health on the lower Amazon has, in the last year or two, also undergone some change, and lately, at some of the towns near the mouth of the river, especially at Camata, on the north side near the sea, there has prevailed a great amount of malarial disorder. In the last-mentioned place, this epidemic of fever has had conjoined with it a scarcity of food and medical aid, which desolated the unfortunate town; the type of fever being simple intermittent, the disastrous mortality was accounted for by the want of proper nutriment and drugs rather than as the result of any virulence in the disease itself.

The government physician here in Iquitos, who has charge of all the medicines used in the place, tells me that he has had to use much more quinia in the last eight months than in the whole of the previous two years; this is exclusive of a goodly amount which persons trading or travelling about this region, or foreign employés, may have consumed out of their private stock.

It is at the present time almost a rarity to see a case of disease of a purely medical nature in which it is not necessary to use the antiperiodic. Just now, when the greater changes of day and night temperature, together with the dryness of the air comparatively, is inducing catarrhs and rheumatic affections, quinia is constantly necessary to effect a cure; these complaints not being severe enough to lay the patient up in bed, but annoying him a good deal, and generally attended with intermissions very well marked. Facial neuralgias are common, and yield to nothing but quinia. Losses of blood by casual wounds or hemorrhagic discharges have recently shown a strange disposition to have these rheumatic disturbances manifest themselves during recovery, arising from the greater susceptibility of the system prostrated and exposed to malarial action. It has also been noticed recently that quinia, though it relieves the patient of the presence of the morbid action, does not cure the individual, he being repeatedly attacked within brief periods of time. In the case of the crew of one of the government steamers, now undergoing repair at the bank, some forty feet below the village level, all of them who have been living on board have had more than two attacks of regular intermittent fever since last March. Such a state of things among the crews of the four steamers here, all of which have at various times been laid up repairing, has not transpired since this was made a government station in 1864. Among those attacked are persons who have lived on the Marañon all their lives without ever being sick, though, as far as can be gathered from

the rather ignorant subjects to be dealt with, probably the majority have at some previous time had intermittent fever in the highlands along the watercourses of that region.

The malarial complication in diseased states will manifest itself sometimes in rather whimsical modes. Pain will locate itself in a muscle or joint, remaining there, becoming greater or less, unattended by marked fever or chilliness, and requiring quinia for its removal. A cutaneous eruption will become heightened or more faint at stated times, and demanding the same mode of treatment. A cough will prolong itself for days or may be weeks, defying the routine treatment by anodynes and expectorants until quinia is conjoined, the use of which may be suggested by increased disturbance at night. It may be mentioned that acute inflammatory disease of the lungs is excessively rare here, though bronchial irritation of apparently a nervous character is not uncommon, and phthisis is most rapidly fatal, surprising both the medical attendant as well as the friends by a fatal result when least looked for.

Probably the most frequent sequela of the action of the malarial poison in this region is dysentery, and sometimes this will be the first mode in which the poison shows itself, though more frequently the patient will have had genuine attacks of intermittent fever without disordered bowels at varying intervals previously, and in another part of the country. It is frequently attended with dropsical effusion into the tissues, and that early in its progress. Instead of dysentery there is often diarrhoea, with watery evacuations, attended with little febrile disturbance, and disappearing and returning at intervals; often they do not apparently damage the system unless some intercurrent complication should arise. The malarial dysentery is to be distinguished from that which is frequently encountered in this region, among the half-breeds especially, arising from the pernicious habit of dirt-eating—a vice so wide-spread in intertropical America. In this case the dysentery is almost always fatal, as it comes on months, or may be years, after the person has been indulging in the habit, and when moral degradation, united to almost complete physical incapacity for the bowels to perform their functions aright, makes treatment generally unsuccessful.

The dirt-eater is to be distinguished by his sallow, pallid, bloated face, swollen abdomen, thin shanks, and by a certain hebetude of mind, or a look as though partially ashamed of himself, which is quite characteristic among the grown-up victims of the vice; the child, who is also a dirt-eater, reminds one of the rather depressed form of humanity among the ignorant lower classes to be found among rural and coast districts of our southern country—wormy, yellow, and half-fed; though the tropical young geophagist is rather a sprightlier character.

In the malarial dysentery there is more febrile action and generally more abdominal pain, and this fever is somewhat regular in its appear-

ance, and the complaint is only to be gotten rid of by the use of antiperiodics. In the other form of dysenteric complaint, there is occasionally fever, though perspiration is somewhat rare, and the patient has more appetite than the malarial sufferer; his tongue is blanched, tremulous, and deeply marked by the teeth; nor does there seem to be produced that peculiar odor which may be noticed emanating from subjects attacked with malarial dysentery after they have been sick for some time.

The treatment of malarial dysentery here is somewhat unsatisfactory, owing to the utter absence of anything like a proper diet for the sick; besides this there is among the natives, and often the half-breeds, a stolidity of character, joined with an unwillingness to have faith either in the medicines or the white man who directs their administration. Still, with all these drawbacks, this form of disease is comparatively easily managed, and when taken in hand early does not often resist medication, though after anasarca has appeared the result is for the most part unfavourable.

When it can be done, a change of climate from this *Montaña* ("wooded district," the name by which the lowland country of Peru is known) to the bracing and healthful regions of Chachapeyas or Cajamarca in the mountains has a most happy effect in completing the cure of these malaroid derangements. From my own rather small observation of these malarial disorders, I have noticed that persons who have taken on the various forms of sickness higher up in the interior, about the watercourses in the region of Moyobamba or Tarapoto, after coming here to the *tierra caliente*, are much more annoyed and are treated with much more difficulty as regards prospect of cure than those who are attacked *ab origine*, as it were, in the lowlands of the Marañon. The great uniformity of temperature and moisture of the *Montaña* appears to be a preservative of health, and a preventive of violent manifestations of marsh poisons; while the variability of the more elevated districts where the days are hotter, the nights cooler, and the air is much drier, seems to be decidedly more unfavourable to any one attacked by ague and fever. In the malarial disorders here it is not often necessary to give more than ten or twelve grains of quinia per day, the large quantities used in our pernicious fevers I have never known to be given. The grade of febrile excitement is for the most part slight, and the greatest amounts of the antiperiodic are generally necessary where there is great display of apparently pure nervous derangement manifesting itself in the colics and other neuralgias which are so rife; this abnormal nervous expression is partly to be accounted for also by the well-recognized greater susceptibility of the nervous system in tropical countries.

Enlargements of the spleen are to be noticed here, though by no means constantly, nor does the organ increase its size in any conspicuous degree; in fact the symptom as one of malarious cachexia does not often attract the especial notice of the physician, and I have seen no case where the organ attracted the attention of the patient himself. We now and then

hear vaguely that some village on the river has had a "peste" (a general name for any epidemic) prevailing with some loss of life, and occasionally inquiry will suggest the idea of violent malarial fevers, though the means of information are rarely very trustworthy, and mortality may be frequently accounted for by an entire absence of assistance, and the well-known indifference or dislike of all ignorant races to assist their kindred in times of plague of whatever sort.

During my stay in Iquitos, now some two years, I have seen only two fatal cases of malarial poisoning: one, an Indian youth, who was severely attacked, and who died in three days, with what seemed, as far as I could learn from his friends, to be congestive fever. He was taken sick some miles below here on the river. He was visited here by a physician too late for any medication to be adopted with any prospect of success. The other case was that of an Indian girl who was attacked with a "malarial colic" during the epidemic here in 1871, and who had, after the force of the plague had disappeared, repeated attacks of the symptoms, which resisted all treatment, and she seemed worn out with the violent paroxysms of abdominal pain and prostrating nausea and vomiting.

These are the only two fatal cases resulting from malarial action in the last three years according to what I have been told. There has been no fatal case of dysentery excepting as the result of dirt-eating, nor from rheumatic disease or bronchial irritation.

The very large proportion of the mortality here is among infants who are the victims of convulsions to a notable and fatal extent in this section, though no observation has been made to link these convulsions with malarial causes directly.

At this place itself the intermittents in the last two years have appeared for the most part among the Indians, the whites being rarely troubled; yet of the obscurer forms of malaroid action, such as neuralgias, there have been, proportionately to numbers, quite as many, or more, foreign and white patients as natives of the valley. Among the traders, however, who are much exposed for weeks, these open forms of fever are sufficiently frequent, though I have not heard of a single fatal case among them since being in this section of Peru.

The people of the country have no herb which they use with a direct view of cutting short these accessions of malarial poison, though there are a great number which they employ as sudorifics to abate their troubles.<sup>1</sup>

<sup>1</sup> It should be mentioned as a notorious fact on the rivers that the pure blooded Indian perspires very slightly. In proportion as his blood becomes whitened by cross-breeding, this physical manifestation is more to be remarked. Another fact is that the negro—full-blooded—of the Amazon borders has very little of that peculiar and well-marked odor which distinguishes him in our country. The negro is also a much more positive character in every respect than the copper-coloured native of this great valley, is able to do more work, does it more intelligently, resists disease better, does not break down by exposure, and is altogether a superior

The traders on the river and foreigners coming into this country generally bring with them quinia as a part of their outfit. The scarcity here now of this drug is such as to raise the price of it in the place to ten dollars per ounce, and it is difficult to get persons to part with it even at that figure.

IQUITOS, PERU, August 16, 1872.

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ART. XIII.—*A Contribution to the Comparative Distribution of Blood-vessels in the Membrana Tympani.* By CHARLES H. BURNETT, M.D., Aural Surgeon to the Philadelphia Dispensary, and to the Presbyterian Hospital in Philadelphia. (With a wood-cut.)

In a series of investigations upon the membrana tympani of the mammalia, I have found in the dog, the cat, the goat, and the rabbit, an ar-creature. This, however, must be noticed in favour of the Indian, that the negro, either of Peru or Brazil, which latter country is the one from which most of the blacks come who are found here, having been for many years or generations under the intelligent and compulsory instruction of a master, has had his wits sharpened, while the Indian has been and continues to be among the forgotten and to-be-sup-pressed races of the earth wherever he is found. The antiquities of Peru show that the then existing Indian race was a capable one when governed by a power-ful centralized authority, and in the last days of the despotic Incas there was no lack of intelligence and force of character in the representative of the line even though it was a severely strict law and observed custom that each Inca could only marry with his sister by which he transmitted to his descendants the princely blood untainted by plebeian mingling.

Another difference of the Indian here and the negro is the ability of the former to stand pain in cases of wounds or surgical interference where the black will either through fright or sensitiveness shrink with dread.

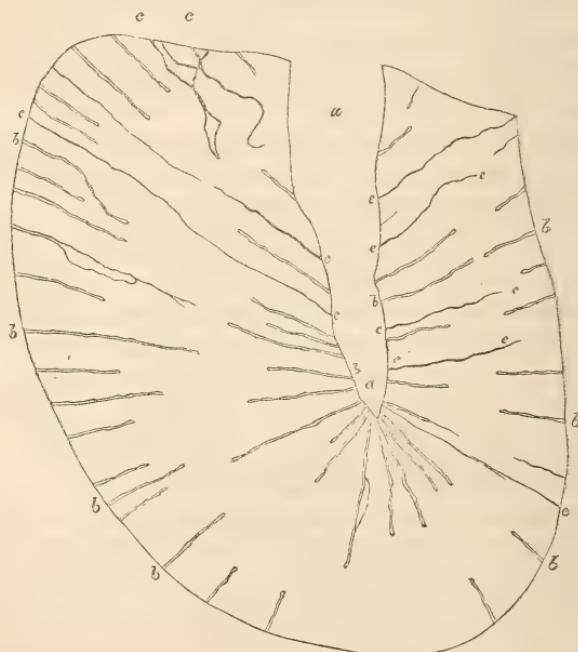
There is no place where I have seen wounds on the Indian (or other native) heal so rapidly and easily as on this river. It is surprising sometimes to see the most hacked-to-pieces body recover from its wounds which may have been re-ceived from a fight or fall. The stoical indifference with which the red native will have himself sewed up after one of these encounters is worthy of all admira-tion. The negro, on the contrary, has his nerves more delicately set, and is a loud complainant about trifles even. The "Zambo"—the cross between the Indian and the negro—makes somewhat of an improvement on either original, while it is a healthful product, differing in that respect from the "mulatto." The off-spring of the white and the "Mestizo," the cross of the white and the Indian, is the breed of inhabitant most common in the eastern part of Peru, and they are a very sprightly race, though volatile, impetuous, and indisposed to any continuous sys-tem of labour or employment, enjoying their youth, which develops early, and disappearing into old age with apparent content, or at least without the growling propensities of our more cold-blooded types of the northern races. It is among this last class that dirt-eating is more commonly found, especially among the children. Leucorrhœa prevails extensively among the women. I do not know of more than two or three females of this race here in the village who have not this disorder more or less marked.

angement of the bloodvessels not heretofore described, and totally different from that in man.

Prussak (*Verhandlungen der Königlich Saechsischen Gesellschaft der Wissenschaften zu Leipsic*, 1868), in his brochure upon the circulation of the blood in the tympanum of the dog, has represented the general topography of the vascular system in the membrana tympani of that animal, but he does not point out the ultimate *loop-like* arrangement of the vessels distributed over the surface of the membrane. The plate which accompanies his article seems to indicate that the delicate vascular loops have been broken by the force of injection, and thus escaped the eye of the observer.

In my investigations I have found that from the periphery of the membrane a series of vessels run directly towards the manubrium of the malleus; then each vessel, at a point from one-half to one-third of the distance between the periphery of the membrane and the manubrium of the malleus, turns *abruptly* upon itself and returns to the periphery, thus forming a series of *vascular loops* at nearly equal distances from each other around the edge of the membrane.

A similar series of loops run both anteriorly and posteriorly from the manubrium of the malleus towards the periphery of the membrana tympani—a diagram of which may be seen in the accompanying wood-cut, representing the membrana tympani of a dog magnified eight diameters.



Membrana tympani of dog. The wood-cut is from a drawing by Heitzman, of Vienna, of a gold preparation made by and in the possession of the author: *a*, *a*, Vacancy left by manubrium of malleus; *b*, *b*, *b*, Vascular loops; *c*, *c*, Ordinary capillaries.

This arrangement of vessels in the membrana tympani is constant in the dog, the cat, the goat, and the rabbit, in consequence of which a portion of the membrane between the annulus tympanicus and the manubrium of the malleus remains free from capillaries in its normal condition, and ordinary disturbances in the circulation are less likely to interfere with the vibrations of the membrane.

These vascular loops do not exist in the Guinea-pig, an animal which has in its membrana tympani an arrangement of vessels peculiar to itself. The general appearance of the membrana tympani of the Guinea-pig, under the microscope, is much more transparent and delicate than that of any of the previously mentioned animals.

The vessels are arranged in the form of a net, with coarse mesh of quadrangular or pentagonal shape. The radiate fibres are strongly developed in comparison with the circular fibres, which are sparsely distributed throughout the texture of the membrane. They are, however, readily seen, and present an appearance as peculiar to the membrana tympani of the Guinea-pig, as the shape of the mesh of the net-work of blood-vessels. In no other membrane have I seen as distinctly the blood corpuscles lying within the capillaries as in that of the Guinea-pig.

The membranes which show these loops and other vascular arrangements most distinctly are such as have been coloured with a solution of the chloride of gold ( $\frac{1}{2}$  per cent.). The vascular arrangement can be seen, but not very satisfactorily, in membranes which have been treated with osmic acid or a solution of carmine. The best specimens, showing not only bloodvessels, but in many cases the delicate nerves of the membrane, I have obtained by preparing the membrana tympani of the dog in the following manner: Remove the membrane from the animal as soon as possible after death. (In the majority of my experiments the animal had been dead but a few minutes.) Steep the membrane a few seconds in concentrated acetic acid; then lay it in a solution of chloride of gold, which should be kept at a temperature somewhat above that of the blood, for one-half hour. After this treatment, the membrane should remain twenty-four hours in glycerine, or water slightly acidulated with acetic acid, and exposed to the light till it assumes a delicate purple hue. The older the preparation becomes, the more distinctly are the vessels coloured. I have some preparations, mounted in glycerine, now almost a year old, which are better than the day they were made—since the gold has taken an increasing hold upon the tissues of the vessels and nerves. After a number of trials, I prefer leaving the membrane in glycerine acidulated with acetic acid, since it demands less care in respect to renewal, and I am never chagrined at finding my specimen destroyed by the evaporation of the water.

By this process the *loops*, and the nerves accompanying them, are most likely to be rendered visible.

The arrangement of the nerves, not represented in the wood-cut, is best

described as "fork-shaped." The prongs embrace the loop; the handle unites with a similar projection from the opposite series of loops. As a rule, the vessels colour more readily under the action of chloride of gold, than the nerves.

How this might be in clear weather, I am not prepared to say, as all of my experiments were performed in the cloudy weather of a Vienna winter, notwithstanding which, the nerves frequently became richly coloured.

This method of colouring vessels and nerves I have applied only to the membrana tympani, and hence, I can claim no superiority for it in connection with other tissues. When it succeeds, it is superior to any injection of this very delicate membrane, since the vessels and nerves are rendered visible with a distinctness characteristic of the action of chloride of gold, a reaction to which our attention was first called by Cohnheim.

The bloodvessels are rendered distinct, without becoming opaque, so perfectly in most cases that we can detect the blood corpuscles lying within the capillary.

The vessel, furthermore, retains its normal calibre and position, whereas, when we resort to injections, the vessels are apt to be unduly distended, are necessarily opaque, extravasation of colouring matter may take place, or the vessel may be ruptured.

The method is more convenient than injection, and as no mechanical force is used, the field of the microscope must of necessity present a very true picture of the tissues as they are in their normal state.

The application of this method of colouring to the membrana tympani of man shows the *absence* of the vascular loops, already described, and reveals an arrangement of the vessels similar to that obtained by other observers with injections.

The arrangement of the vessels is not unlike the vascular net-work in the membrana tympani of the Guinea-pig. In man, however, the mesh is much finer, the vessels coarser. The fibrous layer is, on the other hand, very thick, and is more equally composed of radiate and circular fibres than the membrane in the Guinea-pig.

Since the membrana tympani of man is supplied by a dense net-work of vessels, the gold method of colouring it is superior to the usual method by injection, as the entire preparation is less opaque than when the vessels are filled with Prussian blue, carmine, etc.

We may, therefore, conclude that:—

1. There is a distribution of vessels in the membrana tympani of man peculiar to him.
2. There is a distribution of vessels in the membrana tympani of the dog, the cat, the goat, and the rabbit, constant in, as well as peculiar to them.
3. A distribution of bloodvessels exists in the membrana tympani of the Guinea-pig peculiar to it.

ART. XIV.—*Three Cases of Renal Disease in Children, probably caused by Malaria.* By SAMUEL C. BUSEY, M.D., Physician to the Department of Diseases of Children at the Columbia Dispensary, and one of the Physicians to the Children's Hospital, Washington, D. C. (Read before the Clinico-Pathological Society, Dec. 11th, 1871.)

**CASE I. Amyloid Degeneration of the Kidneys.**—William H. W., black, aged 15; teamster on the Chesapeake and Ohio Canal; admitted to the Children's Hospital, Sept. 18th, 1871. Symptoms on admission: scrotum and penis enormously swollen, œdematos; some pitting about both ankles. The scrotal swelling began about a month previous to admission. Had occasionally had some swelling about the eyes, none now; and several times had thought his belly swelled. Never had any pain. Never had been sick before. Slept well; but was compelled to empty his bladder three or four times every night. Tongue clean, very small, and pale. Buccal mucous membrane markedly anaemic. Pulse small, feeble, 72 per minute; skin dry and harsh; much emaciated and very feeble. Did not think he passed a very great quantity of urine or drank more than usual. Bowels constipated; a stool at irregular intervals, sometimes a day or more intervened. No appreciable enlargement of liver or spleen; no pulmonary affection; second sound of heart quickened and more distinct; temperature 98. Ordered to bed; no medicine. Meat diet, which, in this institution, consists of bread, butter, and milk for breakfast; mutton or beef, with potatoes, for dinner; tea, same as breakfast, and supper, several hours later, of gruel.

During the subsequent twenty-four hours he passed 256 ounces of pale, straw-coloured urine, resembling diabetic urine. No sugar could be detected; albumen one-third. Microscopic examination, for which I am indebted to my friend and colleague, Dr. W. W. Johnston, exhibited considerable epithelial cells, some undergoing fatty metamorphosis; no casts. Liquid consumed during twenty-four hours estimated at 90 ounces.

*Sept. 25.* œdema of scrotum and penis entirely gone; no pitting about the ankles. The dropsical effusions had been gradually disappearing since ordered to bed.

*28th.* Bowels moved several times, occasioned by a dose of potass. bitart. administered the night previous. Ordered ferri et quin. cit. gr. vj. ter in die.

*29th.* Urine passed during twenty-four hours, 80 ounces; albuminous. Microscopic examination of blood disclosed considerable increase of white corpuscles, twenty being counted in a single field, whereas but two could be seen in a single field of two specimens taken from healthy individuals. The rouleaux formation of the red was disturbed, though not forming the "series of long oval bodies," as described by Stewart.

*30th.* Passed 56 ounces; sp. gr. 1012; no relative diminution of albumen, though the aggregate quantity must be very much lessened. Gets up once during the night to urinate. Microscopic examination showed no change. Feels much better, has gained much in strength, more cheerful. Tongue and lips less pale. Is permitted to walk about the ward and to go to the dining-room to his meals. Treatment continued.

*Oct. 5.* Passed 128 ounces; less albumen; no casts.

*10th.* Passed 66 ounces; sp. gr. 1014; albumen very much lessened.

*14th.* Passed 53 ounces; sp. gr. 1015; less albumen. The patient had

so decidedly improved in appearance and condition, feeling quite well and strong, with good appetite and cheerful, that he was transferred to the "out-door" department, and did not subsequently return.

The causal and concomitant complications of this particular form of renal disease were absent in this case, yet there can hardly exist a doubt as to the correctness of the diagnosis. The quantity, colour, low specific gravity of the urine, excessive albuminuria, great thirst, marked anaemia, emaciation, leucocytæmia, dryness and harshness of the skin, dropsical effusion, and fatty epithelial cells are sufficiently characteristic even in the absence of the waxy casts, the ordinary causes and concomitant complications.

The fact of pre-existing malarial disease could not be established, but the circumstance of his employment as a teamster on the Chesapeake and Ohio Canal, which exposed him to malarial influence, recognized as especially intense and virulent, seems, in the absence of the usual causes to render this relation of cause and effect, at least probable.<sup>1</sup> He was, at the same time, subjected to many hardships and subsisted upon the coarsest food, perhaps, also, in insufficient quantity. Though no hopes were entertained of his ultimate recovery, his improvement was marked and decided.

The absence of the characteristic tube casts may, perhaps, be explained upon the assumption that, as the disease, according to Virchow, Stewart, and others, first attacks the Malpighian tufts, thence in succession (Green) the afferent, efferent arteries, arterioli rectæ of the Malpighian pyramids, inter-tubular tissue of the cortical substance, and, finally, the convoluted tubes, the dealkalized infiltration had not invaded the tubuli, though the presence of epithelia, some undergoing fatty metamorphosis, showed that the process of desquamation had commenced, and that the tubuli were not wholly free from disease.

**CASE II. Desquamative Nephritis.**—Ellen W., white, aged 9 years; admitted to Children's Hospital Oct. 17th, 1871.

**History**—Was taken sick a month previous with chills, quotidian, lasting two weeks. Has had fever without chills for past two weeks. Began to swell a week before admission, first in her face, then belly, and afterwards in her feet and legs. Appetite good; diet bad; no meat, mostly tea and bread; occasionally vegetable soup. Sleeps badly; "smothers with a cough," which she has had for two weeks. Bowels regular. Lives in a malarious district.

**Symptoms on admission.**—Very anaemic; feverish. Pulse small, very frequent; tongue pale; appetite good; bowels regular. Face swollen; feet and hands œdematous; general anasarca; ascites. Urine of light colour; sp. gr. 1026; very albuminous. Ordered hydrochlorate of quinia, gr. iij. every two hours; broth diet, which consists mainly of bread and butter, with milk, and beef or mutton broth at dinner.

19th. Less ascites; œdema in lower extremities diminished; none in arms, less about face. Microscopic examination of urine of to-day exhibits

<sup>1</sup> Stewart records two cases not preceded by pre-existing disease.

granular and hyaline casts, with scattered epithelial cells; no more fever. Suspended quinia and ordered ferri et quin. cit. gr. v. ter in die. Diet continued.

20th. Urine passed in twenty-four hours, 30 ounces; colour improved; less albumen.

21st. Urine 16 ounces; sp. gr. 1020; apparently more albumen. No appreciable enlargement of liver or spleen. Microscopic examination of blood shows increase of white corpuscles, nine in one and five in another field. Rouleaux formation somewhat disturbed, sometimes presenting a mass of corpuscles, without any definite arrangement.

22d. Urine passed, 24 ounces; sp. gr. 1020; less albumen. Bowels moved freely, from a dose of potass. bitart.

23d. Urine passed, 24 ounces; sp. gr. 1020; less albumen. Ascites and œdema entirely gone.

24th. 24 ounces; sp. gr. 1016; slightly albuminous.

25th. 24 " " 1020; smoky.

26th. 24 " " 1024; "

27th. 26 " " 1018; less smoky.

28th. 24 " " 1018; "

30th. 21 " " 1026; a trace.

31st. 20 " " 1026; not a trace.

Nov. 7. 11 " " 1030; no albumen.

8th. 20 " " 1030; "

9th. 28 " " 1030; "

10th. 19 " " 1028; "

11th. Patient discharged, presenting all the conditions of health.

The cough, so aptly described by her mother, was due to pulmonary œdema, and, diminishing gradually with the subsidence of the dropsical effusion, ceased entirely upon its disappearance. At first she could not lie down, and slept in a half recumbent posture.

Adopting the nosological arrangement of Johnson, this was a well-marked case of desquamative nephritis, though the granular and hyaline casts indicate that the disease had advanced beyond its acute stage. Adopting that of Grainger Stewart, which is more simple and definite, it was the inflammatory form of Bright's disease. In a *résumé* of the clinical history of this form, he says, at page 15, micturition is frequent, quantity of urine diminished, sp. gr. is lessened, amount of albumen large. "The face, the legs, or the scrotum, or all of them together become œdematosus, and the œdema more or less rapidly increases and extends. There is at the same time some degree of febrile disturbance, the breath may be interfered with, and the patient may complain of headache and drowsiness. On microscopic examination of the urinary deposit, it is found composed mostly of tube casts," which present considerable variety. Some are composed "entirely of granular epithelium." "Others are granular, the outlines of the cells only recognizable on very careful examination; others contain more or less hyaline material mingled with and connecting together granular cells, and some are found in which blood corpuscles, in varying quantity, are present."

The symptoms on admission, the microscopic appearances of the urine, and the clinical history, considered altogether, complete the picture of a

well-marked case of this form of Bright's disease. The presence of scattered epithelia indicates that the disintegration of the epithelium occurred subsequent to desquamation, and that the casts containing tubuli were not entirely denuded of their epithelium. In such cases the prognosis is very favourable.

CASE III. *Hyperæmia of the Kidneys*.—William H. M., black, aged 4 years; admitted to Children's Hospital Nov. 6th, 1871. Began to have chills early in July, has them now, every other day. Commenced to swell about a month ago; slight puffiness about the eyes; both legs œdematos; much emaciated and very anaemic, feeble, dull, indisposed to talk. Not confined to bed, but no disposition to play with other children. Pulse small, hardly perceptible at the wrist; tongue pale, but clean; prolaria very pale; bowels regular; appetite poor; diet bad. Ordered quin. sulph. gr. iij. every three hours, and broth diet.

Nov. 7th. Urine passed in twenty-four hours, 10 ounces; sp. gr. 1026; very albuminous; no casts or blood-corpuscles.

8th. 23 ounces; sp. gr. 1026; no albumen. No chills since admission. Discontinued the sulphate and ordered ferri et quin. cit. gr. iijss. ter in die.

9th. 11 ounces; sp. gr. 1030; one-half albumen.

10th.	8	"	1026;	"	"
11th.	9	"	1024;	"	"
12th.	12	"	1022;	less	albumen.
13th.	5½	"	1030;	albumen increased;	ordered a diuretic.
14th.	8	"	1024;	no	albumen.
15th	14	"	1024;	"	
16th.	12	"	1018;	"	
17th.	14	"	1020;	"	Dropsical effusion entirely dis- appeared; discontinued diuretic.
18th.	10	"	1030;	"	
19th.	9	"	1024;	"	
20th.	10	"	1030;	slightly	albuminous.
21st.	6	"	1030;	no	albumen.
23d.	11½	"	1024;	"	
24th.	16	"	1024;	"	

This child was discharged Dec. 4th, apparently in perfect health. No albumen was discovered in his urine after Nov. 20th, though it was carefully tested daily to day of discharge. The urine was uniformly acid. On Nov. 29th, a copious sediment of urates appeared, but did not recur. The broth diet and citrate of iron and quinia were continued until discharged. On January 4th, 1872, he was readmitted. The ascites and œdema had reappeared. He was very anaemic, with constipated bowels. He had continued well until exposed to the cold, then sickened, and grew worse daily. Urine was scanty; sp. gr. 1021; one-third albumen; no casts. He was placed upon the same treatment. The albumen did not entirely disappear from the urine until January 21st, and his temperature continued slightly elevated, always highest in the afternoon, until 25th. During this period he had several chills. He was discharged well April 28th, having been retained long enough to establish his cure, and has continued well since.

I am not quite satisfied that this was a case of simple hyperæmia. Even after the subsidence of the dropsical symptoms and disappearance of the albumen, the urine continued scanty. During Nov. 14th the amount

passed was 8 ounces ; 19th, 9 ; and 21st, 6 ounces ; and only once during his first admission did it reach 23 ounces. The specific gravity was never lower than 1018, during which day 12 ounces were passed ; and on the 18th, 20th, and 21st, it reached 1030, 10 ounces being passed during the 18th and 20th, respectively ; and 6 ounces during the 21st. The amount of solids, calculated by Golding Bird's tables, exhibited several very sudden and considerable variations. At no time, either during his first or second admission, were casts discovered in the urine, nor did the microscopical examination of the blood disclose anything abnormal. When finally discharged he was passing daily about 28 ounces of urine.

The clinical history of this case impresses me with the belief that there existed something more than hyperæmia. Bouchut asserts, that "albuminous nephritis is an organic affection of the kidneys." Rosenstein holds that albumen may result from congestion, but in cases of long standing alterations of structure occur ; and Stewart maintains that in similar cases indurations of the organ take place. Niemeyer says, "scanty, concentrated, dark-coloured urine" containing albumen is the evidence of obstructive hyperæmia ; while Liebermeister asserts that the presence of albumen alone excludes the idea of simple engorgement and indicates the existence of inflammation. It would seem that the numerous experiments by Duges, Velpeau, Lee, Cruveilhier, Stokes, Blot, Leudet, and others, of obliteration of the renal veins, resulting in albuminuria, would settle the question, at least so far as regards obstructive hyperæmia. Robinson obtained albuminous and bloody urine by ligating the renal veins of a cat. Frerichs repeated Robinson's experiment, with similar results, and, in addition, obtained fibrinous casts. Johnson insists that a morbid condition of the epithelium is first in the order of pathological phenomena. Niemeyer maintains that fluxionary hyperæmia will not alone produce albuminous urine, and his assertion that "ligation of the abdominal aorta below the origin of the renal arteries, in spite of increased pressure which ensues in these arteries, never results in albuminuria," is directly contradicted by Marshall, who says : "When the aorta is tied below the points of origin of the renal arteries, albumen appears in the urine," and that this is an "example of porous diffusion or filtration."

These three cases present, in common, five phenomena : dropsical effusion, emaciation, marked anæmia, albuminuria, and lessened density of the urine, which point directly to disease of the kidneys. But was the renal affection primary or secondary ? The determination of this question involves, mainly, the consideration of the cause. In cases II. and III. it is manifest that the malarial cachexia was primary, and, though not absolutely demonstrated in the case of amyloid degeneration, it is fairly inferred from the history of the patient. There is nothing new in this sequence of disorders. Parkes affirms, from personal experience, "that chronic Bright's disease is a consequence of ague." Niemeyer says the

“poison of malaria” may cause Bright’s disease. H. C. Wood, in a recent essay, published in this Journal, enumerates malaria among the causes of albuminuria. Johnson maintains that the poison of fevers is eliminated through the kidneys; and, though not distinctly classing malaria among the causes, dwells, with great pertinacity, upon the causal relation of dyscrasiae generally to Bright’s disease. Stewart enumerates ague among the causes. Dr. Woodward, of the army, in his work on camp diseases, at page 185, in discussing “chronic malarial poisoning,” says: “Disorder of the kidneys frequently complicates the condition under consideration. Scanty, more or less albuminous, urine is often observed, and these cases which occasionally perish with the symptoms of acute uræmic toxæmia, not unfrequently terminate in chronic Bright’s disease, with confirmed albuminuria, œdema, or general anasarca, and the whole train of symptoms of that disorder.” It is an accepted doctrine that any toxæmic condition of the blood, wherein the poisonous agent may be eliminated through the renal secretion, may produce some one of the forms of Bright’s disease. This is demonstrated in cholera, scarlatina, rheumatism, erysipelas, measles, diphtheria, typhoid fever, pyæmia, syphilis, gout, and in exhaustive suppurative and carious affections. In all the dyscrasiae the kidney complication is secondary, and, perhaps, no one of the cachexiae is more marked in its pathognomonic characteristics or more fruitful in sequences than the malarial, none more destructive of the healthy constitution and nutritive qualities of the blood, and none more enervating. Besides the general phenomena, which so manifestly distinguish the malarial cachexy, and which so markedly exhibit the effects of deficient hæmatosis, there are certain direct and immediate alterations produced in the character of the urinary secretion. Parkes has shown that the moment a paroxysm of malarial fever begins, the excretion of urea increases, such increase continuing during the algid and hot stage, diminishing during the sweating, and falling below the healthy standard during the intermission; also that the uric acid is greatly increased during the fit. Ringer asserts that the quantity of urea corresponds to the degree of temperature; also that the chloride of sodium is greatly increased during the hot and cold stages, and that albumen is found, in a limited proportion of cases, during the fit, with blood and renal cylinders. McClean says: “the blood is changed from the beginning of the attack, and, probably, for some time. The red globules and fibrin are diminished. The coagulum is larger and more flabby than that of healthy blood, much darker in colour.” Aitken insists that “an altered, defective, or contaminated state of the blood is the source of the morbid phenomena which follow.” Among the numerous causes of desquamative nephritis there is none more frequent than cold. Cold cannot act by lessening the temperature of the kidneys. The renal affection is secondary to the arrest of the cutaneous transudation and the determination of the blood to the internal organs. In the algid stage

of intermittent fevers these conditions are superadded to the blood infections, and not only is augmented duty imposed upon the kidneys, because of the arrest of the functions of the skin, but their functions are impaired by the obstructive hyperæmia, resulting from the interruption of the cutaneous circulation.

Rokitansky, Walshe, Watson, Johnson, Aitken, and many others maintain that the various forms of Bright's disease find their cause in the quality of the blood sent to the kidneys, and that the matières morbi seeks its discharge through the secretory function of the kidneys.

No age is exempt from nephritis. Rayer observed many cases from six months to one year. Noel reports a case eighteen months old; and Grisolle, one a few weeks old.

The treatment in all the cases was nearly the same, and was adapted, especially, to the constitutional symptoms. In cases II. and III., quinia was given as an antiperiodic, to arrest the intermittent fever. In all, the combinations of quinia and iron were given. In the case of amyloid degeneration, the diet was highly nutritious; in the others less so. The treatment was based upon the theory of the secondary character of the renal affection, and the result, I think, sustains this view.

In conclusion, I must acknowledge the valuable assistance of my colleague, Dr. W. W. Johnston, to whom I am indebted for the numerous microscopic examinations; and to Dr. Ralph Bell, House Physician, for the notes of the cases.

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ART. XV.—*Remarkable Case of Disarticulation of Inferior Cornu of Thyroid Cartilage.* By EDGAR HOLDEN, M. D., of Newark, N. J.

THE following case will perhaps be of interest from its exceeding rarity; similar displacements hitherto recorded, being usually due to fracture:—

John C., æt. 52, a robust, active man, received a severe blow or kick on the throat while partially intoxicated. Being engaged in a drunken brawl, and so far under the influence of liquor as not to remember the cause of the mêlée, he was uncertain how the injury was inflicted, but thinks it was by a kick. Remembered suffering acute pain, with sense of suffocation, and of raising a considerable quantity of blood. After return to consciousness he continued to raise blood, and to have paroxysms of intense pain, with dyspnoea, and difficult deglutition. Aphony was complete.

A cough, harassing in character, and after a few days accompanied by expectoration of a glairy mucus, followed; and as party considered himself suffering from a severe cold, he was subjected to treatment by expectorants, etc., naturally without relief.

March 7, 1872. A laryngoscopic examination revealed what at first seemed a contraction of the right ary-epiglottic fold with depression of the

corresponding side of the epiglottis, considerable hyperæmia of the posterior wall of the larynx, ventricular bands, and vocal cords. This was now twenty-five days after the injury.

*Subjective condition*, as follows: Aphonia not absolute, but great; dysphagia and considerable cough with expectoration of muco-purulent character, and occasionally slight dyspnoea, otherwise in good condition.

10th. On careful examination with a powerful illumination, the epiglottis was found in a normal position and horizontal, while the arytenoid cartilage of the right side was drawn upward and inward, the vocal cord coming but slowly up to the median line during phonation, and both falling helplessly back against the laryngeal wall immediately after the effort. *Almost complete anaesthesia of the larynx existed.* Touching even of the cords themselves produced none of the usual signs of sensitiveness so characteristic of the larynx, and a solution of iodine of a strength of twenty grains to the ounce (in glycerine) produced only a slight inclination to swallow.

Upon each examination a full view of the trachea could be had down to its bifurcation, while just behind the arytenoid cartilage there presented an apparent redundancy of the anterior oesophageal wall bathed in a thick purulent discharge. This was produced by a contraction of the right arytenoideus muscle deprived of its "point d'appui," and was undoubtedly the cause of the dysphagia.

This case is dwelt upon thus minutely, inasmuch as it is believed to be extremely rare, and because, to any one familiar with affections of the throat, the question of correctness of diagnosis will at once arise.

There was no evidence whatever of fracture. External manipulation would at first lead to a belief that the cartilages were in their normal position; but the patient called attention to a point that "stuck out," and was painful under pressure in certain positions of the head, and this point was easily ascertained to be the lower cornu of the thyroid detached from its articulating facet.

The cricoid could, moreover, when the head was thrown back, be felt to recede on the affected side upward and between the alæ of the larger cartilage. The articulation of the lower cornu on the opposite side was intact, the hyoid articulations were also sound, there was no fracture either of the thyroid or cricoid, and no disarticulation of the alæ of the former in the mesian line such as has occurred from injuries, and, so far as a thorough examination could ascertain, there were no evidences of any other injury to the cartilages than the one disarticulation of the right lower cornu of the thyroid.

Farther than this, and in corroboration of the diagnosis, the voice manifestly improved when the head was bent forcibly over toward the sound side, and the tension of the tracheal attachments approximated a normal position.

The dislocation permitted a bulging, so to speak, of the transverse fibres of the posterior laryngeal muscles, thus producing dysphagia simply as foreign bodies protruding into the oesophagus; having also probably

been lacerated by the injury, and kept in a state of irritation by the necessities of eating and drinking, the purulent discharge followed.

The cough is not so readily explained, since the larynx, probably by reason of injury to the external laryngeal branch of superior laryngeal nerve, had lost its sensitiveness. The aphonia, of course, would naturally result from incomplete tension of the right true cord.

All effort at reduction proved unavailing, anaesthesia and subcutaneous section of the crico-thyroid muscle seemed to offer the best prospect in the case, but, the operation being unfortunately postponed a day or two, owing to other engagements, the patient left the city.

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ART. XVI.—*Notes of a Case of Opium Poisoning.* By J. S. TODD,  
M.D., of West Point, Georgia.

J. H., æt. 30; dissipated, took, October 26, 1872, at 7 P.M., in my presence, little over six drachms of tinct. opii. Assuming thirty drops of laudanum to be equal to a grain of crude opium, he took at one dose twenty-four grains. He had taken half an ounce of laudanum ten or fifteen minutes before this (16 grs.), thus taking in all 40 grs. opii, or 1200 drops of the tincture.

All persuasion to induce him to take an emetic being futile, I prevailed on several by-standers to throw him down, and then vainly attempted to give him a mixture of ipecac. and sulphate of zinc,  $\text{a}\bar{a}$  gr. xxx. I could not make him swallow, though his nose was held and threats used, until I poured some of the solution in his eyes, which caused so much pain that he came to terms, and took the emetic a few moments after; it not having the slightest effect, a drachm more of ipecac. was administered. In ten minutes he was asleep. I had him walked and shaken, thinking that the emetic would act could he be kept awake. There was no stomach pump in the place. He soon ceased to step or exhibit any symptom of pain or sensibility whatever. Placed his head under a pump and gave him the cold douche for five minutes. Meanwhile the coma gradually and fearfully increased. Had him carried to Dr. McMillan's office, where there was a galvanic battery. I was here joined and assisted by Dr. Henderson. Under the galvanic stimulus he so far regained consciousness that Dr. McMillan and myself concluded to give him more ipecac. This was at 8 o'clock. Suddenly, while taking it, he collapsed, and some of the fluid passed down the trachea. Respiration was kept up partly by artificial means, but principally by placing one pole of the battery along the course of the pneumogastric nerve, above the sternum, and the other at the pit of the stomach, for at least three-quarters of an hour. At this juncture the glass of the battery containing the acid broke, and we had no substitute. Mustard was applied to the spine, chest, and abdomen, and friction used on extremities. Pulse slow, full, 30; respiration stertorous, 8; face much congested; nose and ears purple; extremities cold. Had him moved to his room, sent for an old-fashioned friction magnetic battery, the only one in the town. The pupils were, of course, tightly

contracted. We concluded to try the hypodermic injection of atropia ; it was administered until the pupils were widely dilated. At 11 P.M. Drs. McM. and H. left me, saying the man would die very soon ; such was also my opinion, but I determined to give him every attention. The battery was used on him, with occasional intermissions, until three o'clock, when his breathing was six, and the pulse suddenly ceased. I immediately injected under the skin a drachm of raw whiskey, and felt the pulse return before the syringe was withdrawn. After his pupils were dilated by the atropia his pulse became rapid and weak. Fifteen minutes later I injected another drachm of whiskey and two drops of tincture of veratrum viride. Five minutes after the dose, his pulse became slower, but weaker, and there was paralysis of the entire right lung. No air whatever entered or was expelled from it for two or three respirations. I now had him violently rolled about the bed, slapping and compressing the chest. Five or six such turns caused a groan and an emesis of four or five ounces. He opened his eyes, but immediately closed them and relapsed into the comatose condition. This was at 3.15 A.M. From that time until five I gave him six hypodermic injections of a drachm each of whiskey ; and two, an hour apart, of two drops each, of tinct. verat. viride, with marked improvement each time. He was meanwhile persistently and continually worried, the battery applied to spine, the cold douche was used, and he was walked, slapped, whipped, tickled, etc. Any such procedure, however, after two or three repetitions, lost all effect. By 5 A.M. he was able to swallow a teaspoonful of very strong coffee ; one cup of grounds to three of water. By 8 he had taken four or five of such cups, and vomited freely. After this he vomited several times, but at 9 he retained a tolerably stiff drink. Once, about half past six, I let him take a nap. Whenever he was not worried, he slept ; and would, while sleeping, have general convulsive movements, and the breathing would fall from fourteen to eight per minute. I did not allow him to lie down at all during the day, although he was pretty thoroughly aroused by 10 A.M., and perfectly rational. I permitted him to take naps of from ten to thirty minutes, sitting. He vomited everything he took that day, except the toddy before mentioned.

*Oct. 28.* Slept tolerably well last night, but was very nervous.

*Nov. 1.* Has suffered considerably from nervousness and irritability of the stomach during the past three days. Gave laudanum, bromide of potassium and quinia, pro re nata.

On October 29th he left for his home, and November 2d he resumed his work. The whiskey did not cause a single abscess ; all soreness about the chest, where the injections were made, was superficial, and plainly attributed to the mustard which blistered in several places over the thorax, and the skin is still highly inflamed wherever it was applied. He has complained always of his throat, describes the sensation as brassy, and was, until to-day, hoarse. This is doubtless caused by the atropia. His bowels moved spontaneously on the day after he took the laudanum.

*12/h.* Been at work steadily since 2d, no abscess has developed itself.

*Remarks.*—The atropia in this case did no good ; the veratrum much : in fact to it do I mainly attribute the recovery. I do not believe, however, that without the electricity it would have been adequate to the cure. If opium and whiskey are an antidote to veratrum, and they are, why should not the latter be an antidote to the former ?

## TRANSACTIONS OF SOCIETIES.

ART. XVII.—*Summary of the Transactions of the College of Physicians of Philadelphia.*

1872. *Feb. 21. Excision of the Knee.*—Dr. JOHN ASHHURST, Jr., exhibited a patient on whom he had performed an excision of the knee at the Episcopal Hospital nearly a year previously. The patient was a girl of eleven years, who at the age of five had suffered from smallpox, following which she had arthritis of both elbows, and of the right knee-joint. In the elbows, the disease terminated in firm ankylosis, and, the joints being flexed at convenient angles, she enjoyed very good use of her upper limbs. In the knee, however, the arthritis recurred from time to time, the last acute attack having been about two months before the date of the patient's entrance to the Hospital, and the appearance of the joint when she was admitted being very characteristic of advanced disease of the articulation. The knee was flexed to a right angle and very much swollen, the subcutaneous veins enlarged, and the tibia dislocated backwards and outwards. The joint was tender on pressure and painful when moved, and the patient thin and anaemic. Excision was performed on Feb. 28, 1871, by means of a single transverse incision, the condyles of the femur, articulating surface of the tibia, and patella being removed. Five or six small vessels were secured with ligatures, and the wound closed with wire sutures and lightly dressed with oiled lint, while the whole limb was firmly fixed upon a bracketed posterior splint, which was not changed until some time in the fourth week. Convalescence was retarded by a profuse epistaxis which occurred a few days after the operation, leaving the patient blanched and exhausted, by rather profuse suppuration (several abscesses having formed above the site of excision), and by a troublesome diarrhoea which beginning in the month of April continued at intervals through the summer and at one time became a

Fig. 1.



Fig. 2.



really serious complication. Firm bony union was completed about the third or fourth month, but several superficial sinuses persisted and did not entirely heal until three or four weeks ago. The patient now (Feb. 1872) walks readily, without any assistance whatever, though of course with a perceptible limp, due to the shortening which is found by measurement to be an inch and three-quarters. She has grown considerably since the operation, and is now fat and hearty, and in her present condition offers a very satisfactory evidence of the great advantages to be derived from this branch of conservative surgery.

Photographs were exhibited, showing the appearance of the patient before the operation and at the present time. (See figs. 1 and 2.)

*April 17. Lacerations produced by a Lion; Death in forty-eight hours from Traumatic Gangrene.*—Dr. JOHN ASHURST, Jr., reported the following case: J. W., aged 25, a professional lion-tamer, engaged with a menagerie now exhibiting in the outskirts of the city, was rehearsing his part on the afternoon of Tuesday, April 2, 1872, and had placed his head in the lion's mouth, when the animal unexpectedly closed his jaws; the by-standers rushed to the rescue, and with clubs and iron bars, forced the wild beast to loose his hold, when, had his victim made his escape, he would have got off with moderately severe lacerations of the face; unhappily, however, either falling in the cage, or, as other accounts have represented, voluntarily returning with a mad determination to obtain the mastery, the unfortunate man again came within the lion's grasp, was quickly struck down, and the monster's jaws again closed, this time upon the fleshy part of the victim's right thigh. Again the wild beast was driven off, and his conquered conqueror was dragged from the cage, bleeding profusely, and seeming more dead than alive. This was about four o'clock in the afternoon, and the wounded man was taken to a neighbouring tavern, from which he was brought, a little before midnight, to the Episcopal Hospital. When admitted, the patient was in a state of profound shock; there were several lacerations about the lower part of the face and chin, the largest wound having laid open the right cheek into the mouth, while on either side of the right thigh were numerous irregular and jagged openings,<sup>1</sup> varying in length from a few lines to two inches, or even more; these wounds appeared to be of great depth, the muscles of the limb having been evidently torn up and mangled in a frightful manner, though the bone, and, as far as could be ascertained, the femoral artery, seemed to have escaped injury.

I did not see the patient until about 2 P.M., April 3, when I found him in a manifestly hopeless condition. His pulse was extremely feeble and running at the rate of 172 beats to the minute, his respirations being about 40 in the minute, while his injured thigh was enormously swollen, emphysematous and crackling from the gaseous products of decomposition, and discharging profusely from its various wounds a bloody, sanguous, and very offensive fluid; it was, in fact, in that condition, known to surgical writers as true "traumatic, or spreading gangrene." This condition had come on during the night (as I am informed by Dr. Simes, the house-surgeon), and, therefore, in less than eighteen hours from the time of the patient's injury.

I saw the patient again the next day, when he was evidently mori-

<sup>1</sup> These had been carefully sewed up by a Homœopathic practitioner who attended the patient before his admission to the hospital.

bund; there was no pulse at the right wrist, and that on the left was barely perceptible; the right leg, below the knee, was now white, cold, and corposelike, while the thigh was swollen almost to bursting, black in parts, with the muscles protruding through the wounds, and exhaling a most offensive smell; the discoloration of impending gangrene had already reached the buttock. While thus fully a quarter of the patient's body was literally dead and decomposing, his consciousness was perfect, and his mind clear, when he was spoken to, though he occasionally wandered off in delirium when left to himself. He complained of almost no pain, only a little, he said, about the feet. He died two hours afterwards, just forty-eight hours from the time of his injury. No autopsy could be obtained.

This case is of interest, both on account of the unusual character of the injury (in this country at least), and on account of the early onset, and rapidly fatal course of the terrible form of gangrene by which it terminated. The only hope of recovery (and that, of course, a slight hope) for this unfortunate man, would have been found in immediate amputation, at or near the hip-joint; when the patient first came under my observation, his general condition was such as to forbid a resort to any operation whatever.

In answer to questions which had been asked, Dr. Ashhurst said that he did not see any evidences of septic poisoning; he thought it quite probable that the patient was the subject of visceral disease, although this could not be determined, as no autopsy was permitted.

*Case of complete Prolapsus of the Rectum in a Patient previously treated for Exstrophy of the Bladder.*—Dr. JOHN ASHHURST, Jr., reported a case of prolapsus of the rectum, treated by the application of fuming nitric acid. The patient was a child on whom Dr. Ashhurst had operated more than a year ago, at the Children's Hospital, for extroversion of the bladder (see number of this Journal for July, 1871, p. 70), and the rectal prolapse, which was complete (all the coats of the gut being invaginated, and protruding to the extent of about four inches), had existed since she was six months old. Instead of applying the acid in the way ordinarily recommended, through a fenestrated speculum, Dr. A. had followed the plan lately advised by Mr. Allingham, by painting the whole circumference of the protruded bowel in a broad band, sparing, however, the half-inch next to the anus. Before applying the acid, the gut was thoroughly washed and dried, and subsequently well-oiled and returned within the sphincter; the rectum was then plugged with charpie (as a substitute for the cotton-wool recommended by Allingham), and a firm compress applied to the anus, and held in place with broad adhesive strips and a bandage. The patient was, of course, anaesthetized before the operation, and opium was freely given afterwards to relieve the inevitable tenesmus, a cathartic being administered on the fourth day.

It was intended to strictly follow Mr. Allingham's directions, by allowing the rectal plug to remain in place four days, but in spite of all the precautions that had been taken, the rectum relieved itself of its contents the night after the operation, the gut, however, not protruding, and no re-descent occurring for twenty-three days. A second application made a few weeks later by Dr. Valdivieso, the house-surgeon, was more successful, for, though the patient on this occasion tore off her dressings the night after the operation, there has been, as yet, no re-descent of the

bowel, though nearly three months have since elapsed; the patient has now normal daily stools, without pain and without any tendency to pro-lapsus, a state of affairs which has not existed before, since she was six months old.

It may be added that the result of the plastic operation performed to cover in the extroverted bladder, continues to be satisfactory. The inverted skin has assumed the feel of mucous membrane, and a pouch is formed in which the urine accumulates, so that, in the recumbent posture, the patient can hold her water for about two hours, and, when walking or sitting, for about half as long.

This patient has since gone home, perfectly well.

*Sept. 3. Specimens of Tænia Nana.*—Dr. E. A. SPOONER presented these entozoa which, he observed, answer perfectly the descriptions of Bilharz and Leuckart, showing a large, obtuse, quadrangular head, long narrow neck, becoming broader in the body, until, at the terminus, it is three times the width of the head. The entire strobila is 8 to 10 lines in length, having from 150 to 170 segments.

These tænia were passed by a young man, who has presented symptoms of general debility, occasional colicky attacks, diarrhœa, severe frontal headache, disturbance of vision, with slight febrile exacerbations occurring at irregular intervals during the past two weeks. It has been impossible to discover larvæ in the excretions, and it is to be hoped that the cephalalgia and disturbance of vision are symptomatic only of the intestinal derangement. Up to the present time no marked emaciation has occurred, the appetite is less fitful, and the vision is more perfect, but the pain in the head has not much abated.

*Oct. 16. Case of Placenta Prævia.*—Dr. WALTER F. ATLEE related the following: Mrs. P—, whom I had twice attended in confinements several years ago, came to this city from New Orleans, about two months since, when she supposed herself to be about seven months gone in her third pregnancy, to be confined here. She observed nothing remarkable in her state, except an unusual sensation of weight in the lower part of the abdomen.

About one month after her arrival, after having made a great effort in raising something, she experienced a gush of blood from the vagina. On examination, I found reason to believe that the placenta was near the mouth of the womb. After rest for some days in the horizontal position this discharge ceased.

A week ago I was aroused at night by a call that she was dying from a sudden hemorrhage, and, on reaching her house, some few squares distant, I found her almost lifeless from loss of blood. I gave at once a teaspoonful of the fluid extract of ergot, and, passing a uterine sound through the mouth of the womb, which was slightly open, I made a hole through what was over the mouth of the womb, and, very firm pressure being kept up externally against the belly, emptied the womb of its fluid contents. The pressure of the child's head at once stopped the profuse bleeding.

The mouth of the womb was gradually dilated, the whole hand being in the vagina; the placenta was removed, and after that the child was delivered head foremost. The child, of course, was lifeless. It appeared to be at full term. The mother is now out of danger—at least all danger from the hemorrhage.

## REVIEWS.

ART. XVIII.—*General and Differential Diagnosis of Ovarian Tumours, with special reference to the Operation of Ovariotomy; and occasional Pathological and Therapeutical Considerations.* By WASHINGTON L. ATLEE, M.D. With thirty-nine illustrations. 8vo. pp. 482. Philadelphia: J. B. Lippincott & Co., 1873.

*Ovarian Tumours; their Pathology, Diagnosis, and Treatment, especially by Ovariotomy.* By E. RANDOLPH PEASLEE, M.D., LL.D., Professor of Gynæcology in the Medical Department of Dartmouth College; Attending Surgeon of the New York State Woman's Hospital; President of the New York Academy of Medicine, etc. etc. With fifty-six illustrations on wood. 8vo. pp. xxvii., 551. New York: D. Appleton & Co., 1872.

WE welcome the appearance of these volumes with no ordinary feelings of pride and gratification. They may be looked upon as chronicles of the completion of one of the grand modern triumphs of our art. Within the time during which men now living have been on the scene of action, ovariotomy has established itself. It has overcome the opposition of many high in authority, and won its way in spite of the most positive denunciation; from the leaders of professional opinion it slowly gained first the damnation of faint praise, and then a qualified assent and recognition, but it has finally attained the firm position of an unquestioned place among the legitimate operations of surgery, yielding results equal, if not superior, to any of the capital operations, and already numbering its rescued sufferers by hundreds. It is not altogether because they are valuable contributions to science that we give the works a hearty welcome, but also as contributions to the medical literature of our country. Although the birth-place of ovariotomy, although we have always had skilful and cautious operators, and persevering students of the subject, and although our journals and volumes of transactions have contained able papers and contributions, this country has not heretofore had a representation in literature commensurate with the aid it has rendered in making this great progress, nothing to adequately represent to the world at large the work we have done or the skill and talent that have here been devoted to the subject.

The title-pages show at once that the aim and scope of these works are different. Dr. Peaslee gives a complete treatise upon the subject; Dr. Atlee considers chiefly the subject of diagnosis, preparatory to the publication of other volumes. In the former, therefore, we find chapters upon the anatomy of the ovaries, the pathology and classification of ovarian tumours, the treatment of such tumours otherwise than by ovariotomy, and the second part is devoted to the operation itself. The latter has but two chapters not devoted to diagnosis; one upon the pathology of cystic tumours of the ovary, the other upon the physical, chemical, and microscopic characteristics of dropsical fluids. Neither of

these chapters is the work of Dr. Atlee. The first is by Dr. J. Ewing Mears, the second by Dr. Thomas M. Drysdale, both of Philadelphia. The subject of diagnosis, therefore, occupies nearly the whole of one book, and of the other only about one hundred pages. Dr. Atlee's work is based entirely upon personal experience; he presents it as a "mere transcript, of what he has seen and done in this field since 1843," and it contains the record of one hundred and thirty-seven cases, illustrative of the various points of diagnosis. While Dr. Peaslee has not had an experience in operating which can be compared with Dr. Atlee, he has had enough for a thorough practical acquaintance with the subject, and has made a most careful and exhaustive study of it, which is apparent in every chapter and upon every page. He seems to have laid under contribution every volume and every journal-paper published in the three great languages, and shows a scholarship which is not only creditable to himself, but which reflects credit upon the profession of this country. On the other hand, Dr. Atlee, in his preface, makes a distinct disclaimer as to drawing from any resources save his own, or availing himself of the labours of others. While this adds to the value of the book in some respects, on the other hand, in many respects it detracts from it, and in several important portions of it we found reasons to regret that the author has so rigidly followed this determination; several instances of this will be observed in the course of this article.

Diverse, however, as the works may be in aim, scope, and manner of execution, we are happy to say that they have in common many most excellent features. Both are independent in tone; the foundation of clinical experience and thorough study is especially seen where so much pioneer work is done. Both are candid, and errors of diagnosis are frequently admitted. "Mistakes," Dr. Atlee well says, "teach most valuable lessons, and, when discovered, are not likely to be repeated." These with some other characteristics, place these works among the "books which are books," among those which the practitioner turns to when he feels the want of a judicious and reliable guide. And, indeed, we could scarcely expect less from the authors; the high position they both occupy, the immense and the well-known devotion of the other to the subject for many years, experience of the one, their character and learning, all eminently fit them for the task they have undertaken, and warrant the expectation of a satisfactory performance of it.

The diagnosis of ovarian tumours preponderating in these volumes to the extent shown, we naturally turn first to some consideration of that subject. A proper appreciation of its difficulties, and the need which has been heretofore felt for more accurate knowledge, should of course precede a perusal of these works. The difficulties, it is safe to say, cannot be exaggerated. Strong as this expression may appear, it can be sustained from the writings of every author upon the subject, and those who have had the greatest experience have expressed most strongly their conviction of its truth. Says one of our most distinguished ovariotomists: "I do not think that a perfectly satisfactory differential diagnosis of an abdominal tumour can ever be made during life, save by section, no matter how skilful in such questions the attendant." Says another: "In some instances it is not only difficult, but *utterly impossible*, even for the most capable and accomplished diagnostician, to arrive at a certain conclusion." There has scarcely been an operator, perhaps but one, who has not commenced the operation and found matters widely different from what

he expected. More than a hundred cases are on record in which the abdomen has been opened with the object of removing an ovarian tumour, but the operator discovered after making the incision, that the tumour was not ovarian, but uterine."<sup>1</sup>

The need, then, of better and more accurate diagnosis is clear. The practical bearing of improvement in this part of the subject is equally apparent. So long as grave mistakes are made, and so long as it is understood that they cannot be avoided even by the most skilful and most experienced, so long will many members of the profession hesitate to advise their patients to submit to it, and thus the operation will be restricted in the amount of benefit it might confer. On the contrary, certainty of diagnosis leads to increased confidence in and recourse to the operation, and thus to the extension of its benefits. In every respect, therefore, in regard to the credit of the profession, the reputation of the individual practitioner, the welfare of the community, and the safety of the patient, the importance of an improved diagnosis of abdominal tumours cannot easily be overestimated.

Comparing the manner of treating of the subject of diagnosis, or rather of differential diagnosis, we find, of course, that the works differ, each author following a plan of his own. Dr. Atlee, after an introductory chapter upon the mode of examination and diagnosis in general, enters at once into the subject, devoting a chapter to each form of disease likely to be mistaken for an ovarian tumour, and then details numerous illustrative cases with remarks interspersed. His work is better adapted to the wants of the practitioner who has already some experience; still we think it too much encumbered with details of cases, such details being very little read, we believe, beyond the few sufficient to illustrate the point in hand. For the use of the student we should give the preference to Dr. Peaslee's work, not only from its completeness, but from its more methodical arrangement. So far as the interests of the student are concerned, however, we feel compelled to say that both authors have made a mistake in giving obscure causes and complications before presenting the subject in the simplest phases. Thus, among the first cases of Dr. Atlee's book are cases of ascites closely resembling ovarian dropsey—the exudation of peritoneal inflammation having glued down the intestines and limited the fluid to a restricted portion of the abdomen. Such cases are rare, very obscure, and likely to puzzle even an expert. Dr. Peaslee, too, places a chapter upon complications with ovarian cysts and on other cysts often mistaken for them before the one upon differential diagnosis. We think the method of investigation proposed by the latter author, for making a diagnosis, an admirable one for the beginner to follow. He proposes a series of questions, each of which is to be clearly answered before advancing to the next.

- “I. Is there actually any enlargement within the abnormal cavity?
- “II. Is there fluctuation, indicating an accumulation of fluid within the abdomen; or a solid tumour?
- “III. Is the fluctuation due to ascites?
- “IV. Does the cause of the enlargement arise in the pelvis?
- “V. Is not the tumour a pregnant uterus?”

These and other questions are entered upon in detail, and the various directions in which the examiner may be led astray carefully pointed out. In regard to the consideration of question II., we have one remark to

<sup>1</sup> Spencer Wells—*Dublin Journal of Med. Sci.*, January, 1872, p. 43.

make. After stating that non-detection of fluctuation must not always be accepted as proof of solidity of a tumour, the author gives the circumstances under which an observer may be mistaken, and among them distinctly recognizes "great tenseness of the cyst, even though it be a large one." Now, if we understand Case XI., p. 52, of Dr. Atlee's work, it is given to ridicule the idea that an abdomen may be "too tight to fluctuate." Nor does this author anywhere admit that such a condition may deceive in this respect. We most assuredly have this condition of things in hydrocele—a cyst filled with fluid and "too tight to fluctuate."

There is one doctrine of Dr. Atlee's work which is most valuable and important; it may be called the leading doctrine of the book, since he repeatedly impresses it, emphasizes its reliability, and gives numerous instances of its successful application. This doctrine is—the value of an examination of the fluids of dropsies, and especially of abdominal dropsy, for diagnostic purposes. This is the general doctrine having a general application to abdominal dropsy and cystic tumours. In addition to this, or rather as a part of it, he teaches a particular doctrine in regard to the diagnosis of ovarian cysts equally as interesting and as important. It is, that the fluid of ovarian cysts may be distinguished from all other fluids by microscopic examination; that a peculiar cell is found in such fluid which he calls the "ovarian granular cell," and which is characteristic of the fluid of ovarian cysts, being found only in them. The reliance placed upon this sign by the author is complete, and we might quote many instances and cases. The greater number are cases in which the microscopical characters of the fluid sustained and supplemented the other signs and symptoms, but the value of this discovery is best shown, of course, in doubtful cases, where some of the symptoms and signs not only did not harmonize, but were actually opposed to the diagnosis of an ovarian cyst. Such cases are given, of which we may refer to numbers XXV. and XXVI. as instances. In Case XXVIII. it seems to have been the means of deciding a case to be cystic disease which had been diagnosticated cancerous tumour of the ovary by a very eminent gynaecologist. Case XLIII. also seems to be a good instance of a *negative* diagnosis made by this sign alone; the peculiar cells not being present, the tumour was decided not to be ovarian.

The frequency with which this pathognomonic cell is found may be judged from the statement of Dr. Atlee, that it was seen in thirty-one out of thirty-four specimens, and from what Dr. Drysdale says in the chapter on the dropsical fluids of the abdomen. After enumerating the various cells found in the fluids of ovarian cysts, as oil globules, epithelial cells, blood-corpuscles, and the inflammatory globules of Gluge, he says:—

*"But, no matter what other cells may be present or absent, the cell which is almost invariably found in these fluids is the granular cell."* (p. 458.)

"This ovarian granular cell I consider as diagnostic of ovarian dropsy, and have seldom failed to find it in this fluid, except in some of the earlier cases, where it probably existed, but was overlooked from inexperience in the examination of these specimens." (p. 460.)

This cell is carefully described on p. 458: Round, delicate, containing a number of granules, varying in size from one-five-thousandth to one-two-thousandth of an inch in diameter, but generally about the size of a pus cell. On p. 460 we have the means of distinguishing it from a pus cell, and also from the "granule cell of Paget" and the inflammatory

corpuscle of Gluge. The behaviour of the cell upon the addition of acetic acid furnishes the first, and the action of ether the latter. In addition to the description and the action of reagents a representation is given of the various cells mentioned to make evident to the eye the difference between them. Now, we cannot call in question what a man sees, we cannot doubt the action of reagents, but a representation made for the eye is certainly open to criticism, and we are compelled to say that if such differences exist, as are stated in the text, between the ovarian cell and some other cells, the artist has not been happy in representing them in the cut on p. 459 and given also by Dr. Atlee on p. 59. Their size is very uniform, instead of varying as stated in the description, and the difference in appearance from a pus cell after the addition of the acid is so slight that only an expert could distinguish it.

This subject is one of those in regard to which we regret that Dr. Atlee has failed to state clearly and succinctly what has been done by others. No distinct claim is made by him, or by Dr. Drysdale, that they are the discoverers of this cell, yet enough is said to convey doubts upon the point, and to lead the reader to infer that others have had something to do with the matter. Thus, on pp. 60, 61 there is a "personal explanation" in regard to a prize essay of the American Medical Association in 1853, by Dr. Waldo J. Burnett, of Boston, in which the matter is certainly not made clear, and, on p. 154, speaking of the indispensable value of the microscopic examination of fluids, Dr. A. says:—

"It recalls to mind a statement made to me some years ago by Dr. Waldo J. Burnett, the author of the prize essay on 'The Cell,' that he could distinguish ovarian fluid from every other by the character of the cell."

We, of course, turned to Dr. Peaslee's work with no little interest to find what he has to say on so important a point. Fortunately we can give entire not only the description of the object, but his estimate of the diagnostic value of the cells, as both are comprised in a few lines, and from the words we italicize may be gathered his opinion as to the frequency of their occurrence:—

"But a still more striking characteristic *when met with*, of the fluid of ovarian cystomata, is the ovarian glomerulus, or "gorged granule" spoken of by Mr. Nunn, though he does not attach much diagnostic importance to it, and which is recognized by Kœberlē and Dr. W. L. Atlee, and described as found in some of the ovarian cysts recently removed by the latter." [A note of reference to the reports says "they are called *granular corpuscles*."]

"These glomeruli are of a brownish-yellow colour, composed of granules, and are one eight-thousandth to one seven-hundredth of an inch in diameter. I have not been able to detect them in the fluid of all cysts known to be ovarian; and further observation is necessary in order to determine their precise diagnostic value. Kœberlē figured them in his monograph in 1865. Spiegelberg and Waldeyer make no mention of them. Prof. Vallette, of Lyons, terms them *corpuscules inflammatoires*."

Nothing is said here of the effects of reagents, but here we have again a representation addressed to the eye, and here again we are compelled to confess ourselves unsettled by this, usually the best, means of giving a correct idea of an unknown object. In this cut the difference in size between the ovarian corpuscle and the pus cell is marked, the former being very much larger, while in that of Dr. Atlee's work they are very nearly equal. Here, too, the ovarian corpuscle is of varying size according to the description, while in Dr. Atlee's work they are all of very nearly the same diameter. Nor is this all; let any one compare the

representations of the two books and see if he can distinguish the "ovarian corpuscle" of Dr. Peaslee from the "inflammatory corpuscle of Gluge" of Dr. Atlee. Without reading the text the "A" of fig. 33 of the former would certainly be taken for the same object as the "I" of fig. 37 of the latter. Now, one of two things is certain, either the two authors are not writing of and describing the same thing, or they have failed to correctly represent what they are writing of.

We trust that we shall not be understood as questioning the statements of Dr. Atlee or Dr. Drysdale, upon a subject, too, to which the latter has bestowed an amount of labour deserving very high praise. We throw no doubts upon the existence of the peculiar cell, nor do we pretend to decide upon its diagnostic value, either of which would be unjust and presumptuous. We simply place upon record, for the benefit of those into whose hands the books may not fall, the diverse statements of the two authors upon the subject. The doctrines as to the existence of this cell and its diagnostic value must pass through that crucible to which all new doctrines in science are submitted, the scrutiny and re-examination of other observers. If they shall pass through successfully, and the observations of Drs. Atlee and Drysdale be confirmed, it will be difficult to overestimate the importance and the value of the discovery, or the honour due to those who have patiently worked out this addition to our knowledge. Even if the ovarian cell so nearly resembles other cells that their detection is beyond the powers of the ordinary observer, requiring the trained eye of the expert microscopist, the discovery will still confer no small amount of benefit upon humanity.

We will now examine somewhat in detail two forms of disease which very closely resemble ovarian tumours, to illustrate the subject of diagnosis by examination of the fluids, as well as to show some of the recent advances in this direction. The first is the serous cyst of the broad ligament. No other pathological condition more nearly resembles ovarian dropsy than this; no other is more difficult to distinguish. Dr. Peaslee says: "Before tapping it is almost invariably taken for the ovarian cyst." Dr. Atlee says: "It may safely be asserted that its external appearances, when the disease is fully developed, are identical with those of unilocular ovarian dropsy at a similar stage of development." While there are some minor points, such as age, and facial expression of the patient, and rate of growth of the tumour, which might excite suspicion in the mind of an expert, the differential diagnosis now rests safely on the character of the fluid. These cysts contain "a bluish-tinged serous fluid, clear and transparent as spring water, and possessing high refractive powers, as manifested by its magnifying any small object seen through it, if lying at the bottom of the vessel which has received it. It has a specific gravity of only 1004 to 1005, and contains albuminate of soda, but no free albumen." (Peaslee.) "The fluid, in colour, transparency, and consistency, is like spring water. It may be slightly opalescent, but this does not affect its transparency. It is so perfectly clear that the bottom of a bucket when filled with it may not only be seen, but the fibres of the wood are rendered so distinct as to appear to be magnified. It contains no albumen, or, if any, only the slightest trace." (Atlee.) Dr. Atlee places the utmost reliance upon these characteristics of the fluid, interesting illustrations of which are to be found in the detailed cases of his book, and one of them is alluded to by Dr. Thomas in the last edition of his work on Diseases of Women. Dr. Atlee does not, however, allude to

the fact that any other person had ever described this peculiarity of the fluid of cysts of the broad ligament. In Dr. Peaslee's work credit is given to Dr. F. Bird for having first pointed it out as early as 1851-2.

Fortunately tapping is not only of service in the diagnosis of cysts of the broad ligament. It is a most reliable therapeutic measure; the cyst, in the great majority of cases, does not refill, and both authors concur in the opinion that it is this form of disease which has furnished the cases reported of ovarian dropsy cured by a single tapping. "Dr. Charles Clay has had forty cases [of cyst of broad ligament] cured by a single tapping, and only six which filled again. I have myself known one to refill in but a single instance." (Peaslee.) Dr. Atlee states that for a long time he believed medication to be efficacious in preventing the reaccumulation of the fluid, but now looks upon the paracentesis as curative; the opening made by the trocar through the cyst wall remaining patent, the bland fluid excites no irritation of the peritoneum, but is absorbed by that membrane as fast as poured into its cavity. The trocar wound, however, sometimes closes, and then the cyst fills again.

"Hence I have originated the operation of making a small opening in the linea alba, tapping the cyst, and afterwards drawing out and excising a portion of it, and returning the remainder, so that closure of the opening cannot thereafter possibly take place."—*Atlee*.

The second form of disease which bears the closest possible resemblance to ovarian disease is fibro-cystic tumour of the uterus. It is of rare occurrence, it is true, there having been up to 1869 only fourteen cases recorded, according to Dr. Peaslee, and he believes it to be much more frequent in this country than in Europe, having met with ten cases in the last two years, and not less than fifty since 1850. In regard to the extreme difficulty of a differential diagnosis, both authors are agreed; indeed both give cases where they were themselves mistaken, and the most distinguished ovariotomists have committed the same error.

"The resemblance to an ovarian cyst, so far as most of the physical signs are concerned, is quite complete. Especially if the cystic transformation has occurred in a pediculated subperitoneal fibroma, is the resemblance confirmed, for then the sound will show the normal depth of the uterine cavity. I have myself made a diagnostic error in these circumstances."—*Peaslee*.

"No amount of experience will avail the surgeon in making a differential diagnosis by the ordinary methods of examination. It cannot be elucidated by the sound. The tumour is extra-uterine, and may grow to an immense size; its development, instead of being slow, as is the case with the majority of hard fibroid tumours, may be as rapid as an ovarian tumour; the uterus may not be involved, or to a very small extent, not any more than is usually found in cystic disease of the ovary; palpation and percussion, apart from fluctuation, are identical in both kinds of tumour, and even fluctuation itself may be similar. . . . Indeed it is as difficult to distinguish between an extra-uterine soft fibroid tumour and a multilocular ovarian tumour, as it is between a cyst of the broad ligament and a unilocular tumour of the ovary. They are, however, both distinguishable, and by the same means, viz., *tapping*. I believe a positive diagnosis can be made only by *tapping*."—*Atlee*.

As illustrative of the above statement that fluctuation is not a reliable sign, the case mentioned by Thomas<sup>1</sup> may be referred to, where, such a tumour being removed from the body and laid upon the table, "it was examined by a number of physicians, and nothing could convince them even then that its contents were not fluid, except section of the mass."

<sup>1</sup> Diseases of Women, 3d ed., p. 659.

We take from Dr. Atlee's work a description of the fluid obtained from one of these tumours :—

"The fluid was deeper in colour than a straw-yellow, and coagulated firmly by heat, the coagulum being whitish. Very soon after the fluid escaped it gelatinized spontaneously, so that the whole contents of the tub became one dense jelly-like mass, resembling the blood-clot in consistency but not in colour, and consisted, as I then thought, of fibrin. The fluid even gelatinized in the tin cup while filling from the canula."

A fluid then which *coagulates spontaneously*, seeming to be liquor sanguinis—blood minus the red corpuscles—is held to be characteristic of fibro-cystic tumours of the uterus. Such a fluid is found in no other kind of tumour, is never present in ovarian cysts. This is the teaching of Dr. Atlee. On the other hand, we do not find any stress laid upon this important diagnostic point by Dr. Peaslee. He says (p. 107), that "the fluid drawn by the first tapping is sometimes of a somewhat chocolate colour, or of that of coffee grounds, from the admixture of blood." Again, on page 147, he says, "the fluid obtained is generally darker than that obtained at first from an ovarian oligocyst, but exactly resembles that often found in polycysts. Sometimes, however, the fluid is light coloured, but almost always more or less opaque, and contains less albumen than that of an oligocyst or monocyst." In regard to the spontaneous coagulability of the contained fluid we can find mention in but two places ; on page 106, where he gives, following Cruveilhier, two forms of uterine fibro-cystoma, one of which is said to contain such a fluid, and on page 149, where the points of differential diagnosis between these and ovarian cysts are placed in parallel columns ; here it is stated that the fluid is "yellow, serous, like lymph and spontaneously coagulable. But it may be dark-brown, or hemorrhagic." Dr. Peaslee certainly does not recognize this quality of the fluid as the one great and deciding point upon which to make a diagnosis in a doubtful case, as does Dr. Atlee. He quotes Baker Brown to the effect that he knows of no distinguishing signs between these two forms of disease, and Spencer Wells, that he "knew of nothing but a rather darker, less pearly blue aspect of the tumour, which would put the surgeon on his guard," and alludes to the practice of Dr. F. Bird, who resorted to the explorative incision to complete the diagnosis, and says :—

"Without recommending this course, therefore, except with the limitations hereafter to be specified, I commend it as always safe, in any doubtful case, to assume, even after commencing the operation of ovariotomy, that it is one of uterine fibro-cyst, till the operation has progressed far enough to decide that point."

The study of the fluids of abdominal dropsy having been shown to be of the first importance in a diagnostic view, and a physical, chemical, or microscopic examination of them enabling us to decide many doubtful cases, it follows, as a matter of course, that an operation to obtain a specimen of the fluid for examination, becomes one of the necessary steps of diagnosis. This is distinctly taught by Dr. Atlee; the importance of tapping as an aid to diagnosis is impressed all through the book, and the doctrine is laid down that, generally, ovariotomy should not be performed without paracentesis having preceded it.

"Ovariotomy ought never to be attempted by the inexperienced surgeon, should he not be able to avail himself of enlightened counsel, without previously resorting to tapping as a means of diagnosis." (p. 47.)

With this doctrine *per se* we have no fault to find ; it is judicious, and,

as before said, follows as a necessary correlative to the value of an examination of the fluids. But there are two very important collateral relations of this doctrine with which we certainly do find fault, as it is presented by Dr. Atlee, and we cannot but express our surprise that he should have either overlooked or purposely omitted them. We allude, first, to the danger attending paracentesis; and, second, to the substitution of a simpler and safer operation for it where the object is merely to obtain some of the fluid for examination.

So far as we can find, from careful reading of Dr. Atlee's work, there is *no* danger attending the operation of paracentesis. On page 49, under the head of "point selected for tapping," he speaks of carefully avoiding the enlarged abdominal veins, and of the possibility of wounding the bladder. He says, lightly enough, it seems to us, that, "should any vessel be divided by the trocar, it can easily be secured by acupressure." He does not mention the wounding of a vessel of the cyst-wall in polycystic tumours as a possible and unavoidable accident, nor inflammation of the cyst as likely to follow the operation, nor peritonitis from escape of irritating fluids into the abdomen, nor septicæmia; all of which are well-known complications or dangers. Upon page 128, in urging the value of paracentesis as a valuable therapeutic and diagnostic measure, within twenty lines he speaks of it twice as an "*easy and safe*" and a "*simple and safe*" operation. In fact, in combating the doctrine of Meigs of this country, and Safford Lee of England, that paracentesis is a very dangerous procedure, with a mortality of about fifty per cent., which may have been true at some period in the history of this subject, he has placed entirely out of view the fact that there is danger in the operation and has even approached denunciation of those who would hesitate about performing it.

We turn to Dr. Peaslee's work and present his views upon this important point:—

"Tapping an ovarian monocyst is not a dangerous operation, but attended by more risk, in ways which will be explained further on, than the preceding operation. [Paracentesis for ascites.] But tapping a polycyst is a *very dangerous operation*, and which should never be performed *except for diagnostic purposes*." (p. 174.)

"Tapping a monocyst, therefore, under the most favourable circumstances, is not a decidedly dangerous operation, though it is by no means unattended by risk. I once lost a patient within forty-eight hours after tapping a monocyst, apparently from mere shock. . . .

"But tapping a polycyst is always a dangerous operation. . . . None but a very imperative reason should, therefore, induce the surgeon to tap a polycyst; and I think it should never be done at all, unless he is prepared promptly to remove the cyst by ovariectomy, if the explorative tapping demonstrates that he actually has a polycyst to deal with.

"In case, then, we have to settle the question between a renal or perhaps an hepatic cyst, on the one hand, and an ovarian polycyst on the other, and the differential diagnosis, after resorting to all other means, is still obscure, it is justifiable, dangerous as is the operation in case it prove to be the latter, to tap the cyst—the understanding being that, if it prove to be a polycyst, it shall be without delay removed. And in such circumstances alone should a polycyst be tapped." (pp. 175, 176.)

It may be said that this is opinion merely, entitled to respect, but still the opinion of but one man. On page 196 Dr. Peaslee enters at length into the question, "Is simple tapping a dangerous operation in case of ovarian cysts?" and here he gives the figures. He quotes Dr. Meigs's opin-

ion, which Dr. Atlee scouts, that nearly one half of the first tappings of ovarian cysts he had seen, had proved fatal, and the statistics of Kiwisch, Courty, Fock, and others,<sup>1</sup> and says:—

"The result of the preceding data is that in Germany thirty-four out of one hundred and ninety-six die from the direct effects of a first tapping, or one in  $5\frac{1}{3}\%$ ; while in England the figures are fourteen and twenty-nine, or one out of  $2\frac{1}{4}\%$ . The greater mortality in England is probably due to a larger proportion of polycysts in the cases reported."

Summing up, on page 199, he says: "Taking all the preceding facts into account, I think we may assume that, in case of polycyst alone, at least one-half die of a first tapping."

Possibly this is an exaggeration of the danger; possibly even figures are not here reliable exponents of facts, because collected in an earlier period of the history of the subject. We may, too, admit that the tendency of doctrine among ovariotomists is not to so close a restriction of paracentesis as is here implied, yet this certainly shows that there is danger in the operation. This, certainly, is a safer view for the general practitioner to take of the subject, and it is on his behalf, chiefly, that we have occupied so much space with this question, for into his hands fall, at first, the great majority of cases of ovarian disease; in his hands they remain for a time, and he is called upon very frequently to decide upon tapping. It behooves him to remember, that, if it be unjust to expect from him the knowledge and skill of an expert, neither will his reputation bear so well as that of an expert the unfortunate issue of a measure like this.

The simpler and safer operation which may be substituted for paracentesis is, of course, the use of the exploring trocar in some of its various forms. Dieulafoy's apparatus is probably the best, but the ordinary hypodermic syringe may be used instead, as first suggested by Dr. Walker. Dr. Peaslee has devised and figures a modification of Dieulafoy's instrument which he thinks answers every purpose. By even this, however, all danger is not avoided, for several fatal cases have resulted from its use. The danger, however, is reduced to the lowest possible point, so far as furnishing some of the fluid of a cyst for examination; it is, with rare exceptions, as satisfactory as tapping, and that it has escaped mention by Dr. Atlee we can only attribute to his unbounded confidence in the entire safety of the operation of paracentesis. That it is a valuable addition to our means of diagnosis we believe to be unquestioned.

We read with avidity the few paragraphs in Dr. Peaslee's work upon the spectroscope as an aid to the diagnosis of ovarian tumours. Surely, if the same instrument which reveals to us the constituents of the sun and planets shall prove equal to the task of showing us the composition of tumours in the most hidden parts of the body, we shall have another illustration of the value of its discovery, and another instance of the wonderful range of human intelligence. But thus far we have only the promise of assistance in this direction, a fair promise we acknowledge it to be, from the following paragraph, which is far too interesting to be omitted:—

"Dr. Thudichum has shown that luteine, the yellow colouring matter of the corpus luteum, exists also in the egg, in butter, in blood, in the yellow evacuations of nursing infants, and in the fluid contents of ovarian cysts (of the cow). In all these substances, luteine has a spectrum distinguishing it from all other colouring matters, and in each it also has slight modifications distinguishing

<sup>1</sup> See also Thomas, op. cit., pp. 663, 669.

each from all the rest. The spectroscope may, therefore, be expected to distinguish the ovarian cystoma from all other cysts; or may perhaps distinguish between oligocysts on the one hand, as originating from the ovisacs, and polycysts, which are developed in the ovarian stroma."

We cannot pursue the subject of diagnosis any further. All those diseases and conditions likely to be mistaken for ovarian tumours, and all complications existing with them, are fully considered in these works, at greater length, of course, and with abundant illustrative cases, in Dr. Atlee's. We may remark, however, that, in all the experience detailed in these two volumes, we find but one instance of a floating spleen mistaken for an ovarian tumour. Such a case once fell under our observation; by manipulation, the displaced organ could be pushed out of the iliac region and back towards its normal situation, so that the diagnosis did not present any great difficulty.

Before leaving Dr. Atlee's work we have one disagreeable duty to perform. It is to express our regret at the bad taste, to use the mildest possible term, he has shown in publishing, in so many instances, the name of the attending physician in connection with errors of diagnosis. Surely no good is accomplished by this, and much mortification must be caused, to say nothing of injury to a practitioner among his patrons, for no other reason than having failed to make a correct diagnosis of a most obscure disease, and upon which he could not obtain a treatise in his language! In regard to publishing the errors of experienced ovariotomists, there may be the excuse of desiring to make impressive the lesson in hand, yet we should think it far from pleasant to the victims, even if they can better stand it! The case related by Dr. Atlee on page 402, we must characterize as worse than bad taste, first, because there are two gentlemen of the same name in the same city, second, because the error is given entirely upon hearsay evidence.

Passing on now to other subjects, we find in Dr. Peaslee's work an interesting theory in regard to the causes of ovarian disease, which deserves notice. Stating and reviewing the different, widely different, theories which have been broached to account for this singular pathological condition, and finding them all unsatisfactory, he gives his own views as follows:—

"For me the non-parturient condition is the most active of all the predisposing causes of cystoma ovarii, after the first ten years of menstrual life have elapsed; since it has not yet developed its effects in young virgins. I apply this remark more especially to the oligocyst, and I do not recognize a distinction in this respect between unmarried women, on the one hand, and the married, who have proved to be sterile, on the other. The simple fact that the woman has never conceived, and gone through a period of gestation, she being twenty-five years of age and upwards, I accept as a predisposing cause of cystoma. Whether the sexual desires have been satisfied or not, appears to exert a far less important influence; for the married woman, provided she be sterile, seems as much predisposed to cystoma of the ovary as the unmarried after twenty-five years. Sexual desire exists in the mind of the patient, and is a matter of consciousness; but the physiological necessity of completing the cycle of reproduction is an element of the very nature and constitution of woman. . . . It is, then, the non-gratification of the instinct for procreation, and not the disappointment of mere sexual desire, nor of affection, which determines the result in these cases."

The theory is plausible, and the facts upon which it is based have been observed by others, but they have been explained in another way. We translate from Courty, italicizing for ourselves:—

"Ovarian cysts are found in virgins, celibates, and widows, as well as in married women, which demonstrates the little influence exercised by coition upon their development. They are met with also in women who have never conceived, and in such a large proportion that it may be concluded, in all probability, that the ovaries were, *before the apparent development of the tumour, in a pathological condition incompatible with the normal accomplishment of their functions*."<sup>1</sup>

The concluding portion of the first part of Dr. Peaslee's work is occupied with the consideration of the treatment of ovarian cysts other than by ovariotomy. Tapping, followed by injection of iodine, is a mode of treatment heard but little of since the advance of the major operation to a recognized position in surgery, but one of great value, if successful, even to a far less degree than maintained by its most enthusiastic supporter, Boinet, who is said to have resorted to it more than a thousand times! There are certain cases, however, to which it is adapted, in which it is preferable to ovariotomy, and these are carefully pointed out by the author and full directions given as to the mode of performing the operation. Its application is limited, first of all, to tumours having but a single cyst.

But are all monocystic tumours appropriate for the injection of iodine? Certainly not, for

"The nature of their contents exerts a great influence on the result of the operation. If the fluid is very dense and highly albuminous, oily or gelatinous, the operation will not succeed. Inflammatory products, such as flakes of fibrine, render its success very improbable; though if there be pus alone it generally succeeds. If the contents are merely stained by blood it also succeeds. If the cyst be adherent, the iodine injection will not succeed, since the cyst cannot be made to collapse.

"There remains, then, for the iodine injection only the simple monocyst, without complications of any kind as to its walls; with a clear serous, a sanguineous, or a purulent fluid."

We are told that the success of this plan of treatment in Boinet's hands, since it has been restricted to the proper cases, has been as high as "sixty-two cases out of sixty-seven cases."

Tapping and keeping a permanent opening in the cyst, preferably *per vaginam*, receives due consideration, and is of interest from the advocacy of, and success attained by, it by Scanzioni. The operation is stated to have been much improved by Dr. Noeggerath, of New York, who reports five cures out of six cases thus treated; full details of this new plan are given.

These are the only modes of treatment worthy of any consideration, in a curative sense, except the operation,<sup>2</sup> and to this the second part of the work is devoted. It opens with the history and progress of ovariotomy, in which our country has played so prominent a part, and we think it matter of congratulation that the claims of Dr. McDowell, of Kentucky, as the first operator, are here placed in permanent and available form for the profession and before the world. Animated by the teaching of the eminent men of the Scotch capital to whose instruction he had listened, sustained by his convictions of the feasibility of the operation derived

<sup>1</sup> *Traité pratique des Maladies de l'Uterus*, p. 929.

<sup>2</sup> The author shows that oophorectomy is the correct term, and analogous to other compound words from the Greek, as iridectomy, but we think ovariotomy now too thoroughly fixed in our language by use to be displaced.

from close study of the anatomy of the subject, he achieved his triumph, unaided and alone, in a country which was then but little better than a wilderness. Since it was his fate to die before the operation had made any progress, we render to his memory that homage due to the pioneers of knowledge and benefactors of the race. We are happy to see that the dedication of both these works bear testimony to his merits.

Following the progress of this operation step by step, how sad is the history! not more so, perhaps, than the history of the advance of many other branches of human knowledge, yet presenting too many instances of opposition carried beyond the bounds of reason and good temper. But there are bright pages in this history, as well as dark ones. We trust that the student and young practitioner will note as they read, and profit by the lesson, the patience and candor and honesty and fairness shown by those most instrumental in establishing the value of the operation. Dr. Atlee, we are happy to say, presents these characteristics in a striking degree, and the extracts from his early papers on the subject given by Dr. Peaslee [pp. 251-2] show him in a very favourable light indeed, and worthy of standing in this history beside the noble form of Ephraim McDowell.

The time is past when it is necessary to answer the question whether ovariotomy is justifiable; not so long gone either, only "seven years," according to our author; yet past it is, and we are now more concerned to understand just the measure of its success. Upon this point there is plenty of information in the volume before us. The plainest and most striking idea of the amount of life saved by the operation in gross is given in the form of a mathematical problem, and we cannot see that any exception can be taken to this mode of stating it by opponents of the operation, if any such there yet be. Given, the average age of one hundred women operated on; calculate by the "expectation of life" tables the number of years given to those saved by the operation; deduct the number of years they would have lived, as shown by observation, with the tumours uninterfered with, and also the number of years lost by those who died from the operation; and you have the net result.<sup>1</sup>

"It may be shown that, in the United States and Great Britain alone, ovariotomy has, within the last thirty years, directly contributed more than thirty thousand years of active life to woman; all of which would have been lost had ovariotomy never been performed."

Confining our attention entirely to the most recent statistics, we select from the table on page 248 the six highest of this country in number of operations reported, and give their figures, no higher percentage of success being shown by any of the others in the table.

	No. of cases.	Successes.	Per cent.
W. L. Atlee	246	about 70 per ct.	70.
Kimball	121	80	66.11
Dunlap	60	48	80.
Peaslee	28	19	67.85
Thomas	27	18	66.66
Bradford	30	27	90.

We will also place here in connection the statistics of the two leading operators of England, Spencer Wells, and Mr. Clay of Manchester, and

<sup>1</sup> The same calculation has been made by Mr. Hutchinson, and is given in Holmes's *Surgery*, vol. v. p. 63.

the leading operator of Scotland, Mr. Keith, who is also distinguished as being the most successful operator in the world.

"Up to September 1st, 1871, Mr. Wells had completed the operation of ovariotomy four hundred and forty times. . . . Out of the four hundred cases Mr. Wells saved seventy-three and a quarter per cent., and of his last forty cases (since the four hundred) only eight have died. He thinks the average will yet be even ninety per cent. of cases in private practice, without excluding those extreme cases in which the operation is performed as a forlorn hope."

"Up to December, 1871, Dr. Clay had performed two hundred and fifty ovariotomies, with one hundred and eighty-two successes—72.8 per cent."

Dr. Keith has performed the operation of ovariotomy one hundred and thirty-six times. He has attained to the highest success yet achieved in Europe in this department of surgery, having saved eighty-one out of his first one hundred cases, and thirty of his next thirty-six. . . . These remarkable results are ascribable to his great accuracy as a diagnostician; to his extreme delicacy and cautiousness as an operator, and, not least, to his most conscientious and unremitting care during the after treatment. When he had operated one hundred and thirty-six times, he had never made a mistake in diagnosis."

There is a marked difference in the success of the operation in different countries, which is an interesting feature of the subject, the study of which is likely to throw light upon the measures and precautions most necessary to insure success. Thus—

"In the United States . . . the general success is probably not above sixty-three per cent. In Great Britain at least seven-eighths of all the operations have for several years been performed by two experienced ovariotomists (Mr. Wells and Dr. Keith), and the general average is not less than sixty-six per cent. In France, however, the general success had fallen to 39.67 per cent. in 1867, instead of 46.15 in 1864, and is now probably not less than fifty per cent. In Germany, the average success at the beginning of 1870 was 41.66 per cent. against 27.27 at the beginning of 1864."

There is an interesting inquiry here as to the reasons for this difference, and an examination of the various causes to which it has been attributed. Without following this section in detail we may say that the conclusions arrived at are, that the ill success of the operation on the continent of Europe depended upon faulty modes of operating rather than upon less hardy patients, and especially upon "a failure to appreciate the necessity of perfect cleanliness in all the details of the operation which has always been so carefully secured in this country and Great Britain." This seems to be the testimony of French and German writers, and they certainly must be accepted as competent witnesses.

In regard to all these tables and statistics, showing the success of the operation and especially as bearing on the relative merits of individual operators, there is, of course, one very important question—will they bear examination? that close and scrutinizing examination which is well expressed by the well-known motto that such facts are to be *weighed*, not *numbered*? How is it, for instance, in regard to the selection of cases for operating? If one operator rejects all such cases as present bad features and submits to the knife only those which most certainly promise recovery, he will of course be able to show far better results than one who operates on all indiscriminately. We are happy to find here, in regard to some of the leading operators of Great Britain, and Wells, Clay, Baker Brown and Keith are mentioned, the distinct statement, that the great success obtained by them has not been by the selection of cases. We do not find

any positive statement upon this point in regard to the operators of this country, but certainly will not attribute the omission to intention. While the course of some of them as to selection or rejection of cases may be unknown or in doubt, those occupying prominent official positions are so situated as to make the course they pursue in this respect open and certain to all men.

The fourth chapter of Dr. Peaslee's work is an exceedingly interesting one, treating of the "principal conditions predisposing to a favourable or to an unfavourable result of ovariotomy." It is divided into five sections, and from the subdivisions of these we will touch upon one or two which seem to be of especial interest. Thus the "temperament and disposition of the patient" is considered by the author of great importance; not more so, however, than is done by other writers. A hopeful disposition, with good courage, and above all strong confidence of recovery, are very favourable, and, on the contrary, despondency and despair seem to almost insure disaster. "So important do I consider these matters that I should decline to operate on a patient who entirely despairs of recovering."

It cannot but be of general interest to know the decision of the question as to whether previous tapping increases the mortality of those who, after them, submit to ovariotomy. It has been believed that tapping produces adhesions about the site of the puncture, and that in this way the danger is increased. It is here shown that adhesions are not thus produced, and a negative answer is also given to the question in general. Repeated tappings, causing great reduction of strength, would of course have a very unfavourable influence, but a wide range of experience showed that the mortality is not quoted higher among those who have been tapped, and Spencer Wells is quoted in support of this view.

Under the head of "Previous treatment of the case," we should have been glad to see something said of the futility and of the positive injurious influence of medication with mercury, iodine, and other active remedies. It cannot certainly be, judging from our own experience, because the author has not repeatedly met with ovarian tumours which had been treated in this way, and although it may be charitable to attribute the medication to an error of diagnosis, it would be none the less to the patient's benefit to impress the wisdom of abstaining from debilitating drugs until all questions of diagnosis were cleared up.

A very important section of this chapter is the one on the "characteristics of the operator tending to success in ovariotomy." The necessity of perfect cleanliness, of gentleness and delicacy of manipulation, are impressed, and there is shown the "influence of experience on the part of the operator." This has already been alluded to; in the paragraphs quoted in regard to the relative mortality of different countries it is stated that the average rate of success in the United States is kept down by the number attempting the operation who are "mere physicians, who never think of performing any other surgical operation, even of the simplest kind," and we wish, for the credit of the profession, that we could term this an exaggeration, but do not feel justified in doing so. The necessity for experience on the part of the operator is held to be greater for ovariotomy than for surgical operations generally, on account of the constantly varying complications, either in kind or degree, or both, and of the unforeseen emergencies which may arise at every step of the operation. The position is sustained by tracing the increasing success of various operators with increasing experience. A table is given of four hundred cases by

Mr. Wells, the decreasing mortality of each successive hundred being shown, the deaths running 34, 28, 23, 22. Dr. Clay, of his first one hundred and thirty-seven cases saved 71.53 per cent.; of his last one hundred and thirteen he saved 74.34 per cent. Dr. Keith saved seventy-eight per cent. of the first fifty cases, and eighty-four per cent. of the second fifty. Thus, statistics certainly sustain the author in his propositions upon this point. He is sustained, too, by other authorities: Dr. Thomas is convinced that, "if the histories of all the single operations performed by different practitioners in this country were published, they would present a lengthy and by no means pleasing exhibit."<sup>1</sup> It is unnecessary to say that such recklessness should be exposed and condemned. The effect upon the statistics is little compared with the lives sacrificed, and those who undertake the operation without careful study of the subject, without having seen the operation performed by others, and without other surgical experience, should be held to a strict accountability.

Among influences affecting the successful issue of a case of ovariotomy we should place none above the anæsthetic administered and the mode of administering it. Singularly enough it is not accorded a place by itself in Dr. Peaslee's enumeration. It comes in under the head of vomiting during and after the operation, but the subject is of such general interest that we copy in full what he says of it:—

"It is in respect to its tendency to produce emesis that chloroform is decidedly objectionable as an anæsthetic in ovariotomy. Though it has been generally used in Great Britain, Dr. Clay doubts, since serious sickness is produced by chloroform both during and after his operations, if it has, on the whole, contributed to his success. Of Dr. Keith's reports of his earlier cases, almost all speak of the duration after the operation of the chloroform sickness. He has used ether since his fifty-second case, and doubts if, on the whole, chloroform is a boon to mankind. Mr. Wells has of late commonly used the bichloride of methyl as an anæsthetic. It contains one equivalent less of chlorine than does chloroform, and is given in the form of spray. Dr. W. L. Atlee uses one part chloroform, liquid measure, to two of ether. Kœberlé uses chloroform. Generally in this country the pure ether is used, [?] and, I think, answers all the requirements as well as any other anæsthetic, if properly administered, while it is also quite as free from objection as any other. I have never seen it produce vomiting during the operation, excepting in cases where it was administered within two or three hours after taking food, as never should be done; and then with the effect only of promptly evacuating the stomach. I have never seen vomiting produced by it after the operation. I, however, record my protest against keeping a patient continually, during the operation, from the use of any anæsthetic, at the point of narcosis indicated by stertorous breathing, and lividity of the lips and face. It is simply anæsthesia, and not asphyxia, that is required; and I have seen more than one fatal result of ovariotomy in very debilitated subjects, which might fairly be attributed to the reckless use of the anæsthetic. As soon as stertorous respiration is produced, the anæsthetic should be withdrawn, and afterward re-applied so as to keep just short of this symptom. Complete anæsthesia is, in itself, a sufficient approach to death, even in case of a patient not much debilitated; and it is simply unpardonable uselessly to superadd to it another still more dangerous condition."

We thank the author most heartily for this protest, for these noble words! Would that they were not needed! but, certainly, there is not within the range of surgery any procedure so important in results, requiring such conscientious study to prepare for, and such careful watchfulness in carrying out, so lightly undertaken and so frequently bungled as

<sup>1</sup> Op. cit. p. 730; see also Hutchinson—Holmes's System of Surgery, vol. v.

the production of anæsthesia. That it is "anæsthesia, not asphyxia," that is wanted, and that the condition is a "near approach to death" will bear repetition.

One of the great dangers of ovariotomy being shock or collapse, especially when the operation is prolonged, it would seem that ether, from its less depressing effect, would be the preferable anæsthetic. At any rate, operators are not agreed as to this matter, and there is an evident casting about for a remedy of this class free from objections, as an instance of which we may mention that within a few months we saw Marion Sims perform the operation while the patient was kept under the influence of nitrous oxide gas. Under these circumstances we venture to suggest a trial of a combination long before the profession, but we believe not yet used to the extent it deserves, and, so far as we know, not yet tried at all in ovariotomy. We allude to the mixture recommended by the committee of the Medico-Chirurgical Society of London—one part of alcohol, two parts of chloroform, three of ether. In considering the treatment of shock, the author says, "if there is reason to apprehend danger from this source, the inhalation of the vapor of alcohol together with the anæsthetic is a judicious precaution." But it is not alone from theoretical considerations that we recommend it. After many years' experience with it, after repeated use of it in extensive railroad injuries, and other accidents where shock is present to a marked degree, we are convinced that it is a combination of anæsthetics peculiarly adapted to an operation so severe, depressing, and often protracted, as ovariotomy.

In the examination of Dr. Peaslee's book we have held strictly to points of interest to the general practitioner; we have by no means considered all such; to do so would occupy far more space than we have at our disposal. We cannot then be expected to follow in detail the various steps of the operation itself, which would be of interest to experts only. We can only say, briefly, that every step of the process from the preparatory arrangements to the after treatment is given with the fullest detail; not only every step of the operation is described, but every different mode of performing it which has been advocated, and every proposition which has been made in regard to it. As an instance, we may mention that the section on "treatment of the pedicle" occupies forty pages, every device being described, and most of the instruments figured, including a novel and ingenious plan and instrument of the author's, for who would write upon ovariotomy without proposing a new method of treating the pedicle? We may say of the operation, as described, and of course performed by Dr. Peaslee, that it is characterized by the most scrupulous attention to details, stress is laid upon even the most insignificant. Reading this part of the book carefully, and examining it in comparison with other writings upon the subject, we cannot escape feeling that the difficulties of the operation are drawn in too deep colours. We would not call in question the honest conviction of the author upon this point, will not attribute this deep shading entirely to a desire to check the rage for operating by incompetent men, will grant the importance of attention to minute details, even to artificial serum for the hands, certainly would not sanction any other view of the matter than that he who goes into the operation can never be sure of what he will find on his way, yet, after all, we feel very certain that, if text-books on surgery so dilated upon and reiterated the dangers of amputation, of lithotomy, and of the operation for hernia, it

would tend very much to discourage those who were turning their attention to them, and embarrass those who undertook them for the first time.

The treatment of the patient after ovariotomy is fully detailed, and in regard to the necessity of the most scrupulous care and attention to this, and as to its influence upon the result of the case, there can be no two opinions. One measure of after-treatment the author claims as original, and he deserves credit for its introduction. We allude to intra-peritoneal injections in the treatment of septicæmia following the operation. That the remedy exerts a powerful influence for good, in this most discouraging and usually fatal complication, is strikingly shown by the detail of cases given. Convincing proof of the efficacy of this measure may also be found in a report of three cases of double ovariotomy by Dr. T. G. Thomas,<sup>1</sup> and the daily ranges of temperature being given, the beneficial effect is most strikingly shown by the fall of the thermometer after every application of the remedy.

Coupled with this is a measure for the *prevention* of septicæmia. The author proposes to introduce a tent into the lowest angle of the wound, in all cases where a collection of fluid in the peritoneal cavity was to be expected.

"The tent to remain undisturbed till the fourth day, if no symptoms occurred to demand an earlier withdrawal; when it was to be withdrawn, and the cavity examined for the presence there of fluid—the examination to determine whether the opening should be finally closed or the injections be commenced."

We cannot but think it singular that he should prefer for this process an opening left in the exterior abdominal wall to one made in a depending position, through the Douglass *cul-de-sac* into the vagina. Certainly, looking at the topography of the region it would seem as if that course was especially laid out and designed for a drainage-channel after the operation, providing a ready and certain way of escape for all irritating fluids, and an entry way for the administration of disinfectants and antiseptics. Of these advantages many operators have availed themselves, and, indeed, Dr. Peaslee claims (p. 434) to have been the first to introduce a bougie through the roof of the vagina into the peritoneal cavity, and he notices the fact that Dr. Keith, at an early date, made use of drainage tubes in this way. If we are correctly informed, Dr. Marion Sims now always makes use of such a tube in the operation. Kœberlé has used a glass tube, thus introduced for drainage purposes; but whether always, or only under certain circumstances, we cannot say, not having access to his works, and we looked with interest for information upon these points in Dr. Peaslee's book; but although generally so full and minute, we found it lacking here. We should then have expected from the author fuller explanation and more explicit statement of reasons for the abandonment of a plan which has been pretty fully tried, which has every theoretical consideration to sustain it, which is certainly growing in favour, for one which, so far as *à priori* reasoning goes, is not nearly so good a plan. Moreover, when he makes such a statement as this: "I have not used the glass tube as first practised by Kœberlé, since I consider the use of an open tube to be an *invitation to septicæmia*," we have a right to ask a statement in full of the grounds upon which such an opinion is based. We cannot see that the admission of air to the abdominal cavity through this tube, the cavity being thus thoroughly drained, is nearly so

<sup>1</sup> American Practitioner, July, 1872.

likely to produce the complication as the penning up of fluids for four days, and then admitting air through the tent-opening, while injections can be as well administered by the one route as by the other.

One other matter belonging to the future of ovariotomy does not receive from Dr. Peaslee the notice which we believe it merits. We allude to enucleation of the tumour as first practised by Dr. Miner, of Buffalo. Dr. Peaslee mentions the plan in two or three places, but expresses the opinion that its applicability is very limited. On the contrary, the originator claims that "all ovarian tumours capable of removal" can be removed by it "with advantages so manifestly superior as to commend it for trial before resorting to any other plan."<sup>1</sup> The plan has been successfully followed by several operators, has received very high encomiums, and we look upon it as a most decided improvement in the operation.

In closing our review of these works we cannot avoid again expressing our appreciation of the thorough study, the careful and honest statement, and candid spirit which characterize them. In Dr. Peaslee's work we have reference to all which has been written by others, besides the results of his own experience and study, making a treatise upon the subject which is not only complete but exhaustive. Dr. Atlee's experience has been immense, and in his work it is faithfully recorded and clearly presented. Let it not be understood that his book is only for the professed ovariotomist; every practitioner whose daily duty brings him to the diagnosis of abdominal tumours and conditions will find in it a most useful and reliable guide.

J. C. R.

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ART. XIX.—*The Principles and Practice of Surgery.* By FRANK HASTINGS HAMILTON, A.M., M.D., LL.D., Professor of the Practice of Surgery, with Operations, and of Clinical Surgery, in Bellevue Hospital Medical College; Visiting Surgeon to Bellevue Hospital, etc. Illustrated with 467 engravings on wood. Royal 8vo. pp. 943. New York: Wm. Wood & Co., 1872.

In this work of about 950 pages, subdivided into 42 chapters (24 devoted to General, and 18 to Regional Surgery), an endeavour has been made to supply "the instruction necessary to a full understanding of all the subjects belonging properly and exclusively to Surgery: the volume being intended as a text-book for students, and at the same time as a direct and complete guide to the surgeon."

It is claimed by the author, that

"Each department has been treated with as much conciseness as was consistent with precision and completeness; much of the literature of surgery has been omitted; questions which affect only remotely the conduct of the operator have been discussed with brevity; and there has been substituted, whenever it seemed necessary to a thorough comprehension of the subject, a more minute description of the surgical anatomy, and of the most approved operative procedures, than is usually found in similar treatises."

That so excellent a surgeon and well-known writer as Prof. Hamilton would make in a work such as this under review a positive contribution

<sup>1</sup> See this Journal, October 1872, p. 391.

to the literature of his profession was a matter of course; that he could within the limits assigned himself do all that he has claimed to have done, was perhaps equally of course an impossibility. We have read his work with much pleasure and profit. Its most marked peculiarity is its eminently practical character. Its author has evidently thought most upon diagnosis and treatment. Surgical pathology does not seem to have been with him a favourite subject, and he has everywhere hurried over the *how* and *why* to describe *what* exists and *what* is to be done for it. His views are his own, sometimes decidedly at variance with those of certain of the "authorities;" and he has expressed them confidently—bluntly, indeed, occasionally.

The error almost inseparable from the task of writing a complete treatise on surgery in a thousand pages, viz., that of giving too much attention to certain topics and too little to others, has not altogether, we think, been avoided. It is true that the relative importance of the various subjects discussed is very much a matter of judgment; still we are of the opinion that, *e. g.*, if the whole subject of wounds, other than gunshot, is to be treated of in twenty pages, seven of the twenty ought not to be devoted to *arrow* wounds. If *tetanus* must be disposed of in five pages and *pyæmia* in one, seven pages should not be given to *hydrocephalus* and *glanders*. If *apnæa from drowning* deserves five pages, *extravasation of urine* should have more than seven lines. Again, is the fitness of things fully preserved in occupying twice as much space in the consideration of *ranula* as of *cystitis*; or as much in that of *cleft palate* with the operations for its relief, as of *stricture of the urethra* with its treatment? That the consideration of the *healing of ulcers by transplantation* should extend over more than half as many pages as that of *hip-joint disease*, is more excusable, since to Prof. Hamilton belongs the credit of priority in the establishing of new points of cicatrization by transferring healthy skin to the central portions of old ulcers.

Inflammation, as might have been expected, introduces the work, and in the chapters upon it and its terminations, there are strongly brought out the characteristics already referred to, viz., brief reference to pathology, clear statements of local and general signs, and positive views as to the relative value of remedial agents and methods of treatment. *Blood-letting* is declared "a spoliative remedy of great power, and experience has demonstrated that inflammation may generally be treated successfully without its aid;" and *mercurials* are not at all referred to except in cases of syphilitic origin. In the treatment of erysipelatous inflammations we notice that the tr. *ferri chloridi* is recommended in  $mij.$  doses every four hours. The benefit to be derived from such small quantity we cannot appreciate, for before any constitutional effect of the iron could be produced, the disease in its natural course would have gotten well of itself.

The articles on Gangrene and Tetanus are to a very large extent the same as those on the same subjects in the author's "Treatise on Military Surgery."

In the general consideration of wounds, reference of course is made to the antiseptic dressing, which is not regarded as possessing the extreme virtues that have been claimed for it. Gunshot wounds are treated of at considerable length; operative interference being urged in cases of injury of the skull; a more than usually favourable opinion entertained of "Howard's sealing method" in penetrating wounds of the chest; and disapproval expressed of probing wounds of the belly and treating the subjects of such

by heavy doses of opium. As illustrating how "doctors disagree," it is interesting to compare the remarks of our author on skull wounds with those of Stromeyer, who would entirely exclude trephining from military practice as "useless in some and unnecessary in other cases." Respecting "autopsy wounds" it is stated that "it is not from all bodies recently dead that poison can be conveyed. It is only from such as have died of certain maladies." On one occasion a saw scratch received while making an autopsy of a man killed an hour before by a blow on the head, caused us no little trouble, from which we did not fully recover for several weeks.

The chapter on "Venereal Diseases" briefly but clearly presents the views now generally entertained by syphilographers, and the treatment recommended is judicious and in accordance with those views. In the treatment of epididymitis no favourable opinion is held of strapping, which it is maintained will be found to be either inefficient because too loose, or so tight as to strangulate the cord and necessitate speedy removal. Puncturing the tunica albuginea or opening the tunica vaginalis is held in perhaps higher esteem. Mercurials are advised during the primary stage of syphilis as well as in the secondary, and under certain circumstances during the transitional and tertiary stages, though in the latter "with more caution than in the secondary forms, always in minute doses, never to the production of ptyalism and rarely should its use be continued for any great length of time." Of syphilization as practised by Boeck while in New York city upon patients under his observation, the author says, "that in each instance the improvement was unmistakable, and in one or two extremely bad cases the progress towards recovery was remarkable."

In the chapter on "Lesions of the Vascular System" we find that the ligature is by the author held in highest esteem for the arresting of hemorrhage, he not recognizing the force of the great objections to its use so strongly urged by the advocates of torsion, acupressure, etc. Its application to veins he does not regard so dangerous as has long been held. In view of facts within the knowledge of every operator, and such testimony as has been presented by Dr. S. W. Gross (see this Journal for January and April, 1867) and others, is it not time that the doctrine of great danger in ligating veins should cease to be inculcated by surgical writers and teachers?

The application of absorbents and discutients to inflamed lymphatic glands is declared to have frequently increased the difficulty, and never to have produced the effect desired. What will the profession do if it cannot, as heretofore, direct that all glandular swellings, acute and chronic, shall be painted over with the tincture of iodine?

Thirty-five pages are devoted to "Aneurism," its varieties, symptoms, treatment, and anatomical instructions for the application of the ligature in various regions of the body. The "primary pathological condition which terminates in arterial lesion," viz., "Atheroma," is declared to most generally undergo fatty degeneration, the calcareous degeneration ensuing only in exceptional cases. Is it not a fact that in this country the calcareous is decidedly more frequent than the fatty degeneration?

Among the various therapeutical measures recommended we fail to find any mention of *ergotin*, which, perhaps, promises better than any other agent. In the method of treatment other than by ligature, though both flexion and compression are spoken of, nothing is said of their combination except that when much pain is caused by flexion, it "must be diminished, and moderate digital or instrumental pressure may be employed as

adjuvants." We have seen, in the practice of the late Prof. Blackman, of Cincinnati, complete cure of popliteal aneurism effected within two hours by combined flexion and compression. The treatment by galvanopuncture is not very favourably considered, the result being in the majority of cases only the formation of a soft clot, if any at all, the consequent exposure of the patient to the danger of embolism, and the possible development of inflammation of the sac and adjacent tissues. In the paragraph on the ligaturing of the ulnar artery in its lower third we find it stated that the *ulnar* margin of the flexor carpi ulnaris is the guide to the artery; and that the tendon, after the primary incision is made, is to be drawn to the *radial* side. We think that the operator will reach the artery more readily if he cuts down on the *radial* side of the tendon, between it and the flexor sublimis.

The abdominal aorta is said to have been tied five times in all. Certainly Cooper, James, Murray, Monteiro, South, McGuire, and Watson have tied it, not to mention Stokes, who embraced the vessel with a wire tightened by Porter's compressor.

The chapters on "Fractures and Dislocations" are what might have been expected of one who has written the best work on these subjects ever published, and the author's peculiar views on various points are those with which the profession is already familiar through that book. As respects the use of anæsthetics in the primary examination of cases of fracture it is said, as truly as forcibly:—

"It is certain that those surgeons who handle broken limbs rudely are either very stupid or very inhumane, but there are some men who never do otherwise; and the only hope for the patient who is so unfortunate as to fall into their hands is, that he still retains sufficient consciousness and sufficient strength of voice and of limb to successfully defend himself. If such surgeons as I have described are permitted to practise, they ought not, at least, to be allowed to render their patients insensible by anæsthetics."

If the reader has any further doubt that Prof. Hamilton can write sharply when so disposed, let him glance over the paragraphs upon the subject of shortening in fracture of the femur, which conclude as follows:—

"In other words—to state a matter of fact very plainly—through ignorance, inadvertence, or intentionally, these men do not tell the truth," i.e., in claiming to make perfect limbs.

The immovable dressings are not much favoured: "On the whole, therefore, with few exceptions, all of these forms of dressing have been found by myself eminently unsatisfactory." No notice is made of that variety of the plaster-of-Paris dressing known as the "Bavarian dressing," which has in our hands answered an excellent purpose, and which we like better than any other immovable dressing, since it permits ready inspection of the limb at any time.

In the preparation of the chapters on "Amputations" and "Excisions," some use has been made of what the author has already published in his "Military Surgery," but very much less than might have been anticipated. The directions as to the methods of operating, particularly at the articulations, are full and clear, and deserve careful study. In amputations the choice of operation, whether circular or flap, is to be determined by locality and circumstances of the particular case.

In excisions of the elbow-joint made for recent fractures, preference is expressed for the H incision, the straight incision being recommended in

operations on account of chronic diseases of the joint. To remove the ulnar nerve out of harm's way, Lister recommends pushing it to the inside with the thumb-nail, along the back of which the knife is entered and carried first across the joint. In excisions of the shoulder it is recommended that no effort be made for the first week or two to carry up the lower fragment, the arm being simply supported by a sling under the wrist.

Excisions of the knee-joint, as substitutes for amputations in gunshot injuries, are declared to have "proven especially unfortunate."

In the chapter on "Tumours," a classification has been adopted more nearly allied to the clinical than the anatomical, the author believing that "there is not sufficient ground for its acceptance [the latter] at present by those who are pursuing the study of practical surgery." Sarcoma as a separate general class of tumours is not treated of, its varieties being mentioned under fibrous and bony tumours. Under "cystic tumours," those affecting bursæ are described at unusual length, and several pages are devoted to the anatomy of natural and acquired bursæ in the several parts of the body, the author endeavouring "as far as possible to supply the omissions" in Monro's work. Carcinoma is declared to be "probably, in most cases, primarily local." A full recognition of the truth of this opinion would go far towards securing an early and thorough removal of tumours of this kind, and perhaps alter very materially the gravity of the prognosis in cases now given over from the start to certain death. In the removal of cancers the knife is preferred as quicker, easier, and surer than any caustic application; and electrolysis is pronounced, as compared with the knife, "equally painful, more tedious, more liable to such accidents as erysipelas and pyæmia," and very little likely to effect decomposition and absorption of the growth.

The remainder of the book is devoted to "injuries and surgical diseases" of the several regions of the body, and, in the multitude of subjects of interest ably treated, we can only notice a few points that have specially attracted our attention. The chapter on "Injuries of the Head" is full of such practical suggestions and directions as will be most interesting and valuable to the busy general practitioner. In scalp wounds sutures are declared "in general inadmissible." Is not the idea of their danger to a large extent a creature of the imagination, like that of the danger in ligating veins, curing an old ulcer, or stopping a chronic discharge? The author's views on the use of the trephine and elevator in gunshot fractures have already been noticed; in fractures other than gunshot, where there is depression and compression, he, in common with almost all surgeons, advises operative interference, which, however, is "more difficult and less urgently demanded in children than in adults."

Dr. Galt, the inventor of the conical trephine, is spoken of as of *South Carolina*, instead of *Virginia*.

We regret that the sub-chapter on intracranial abscess was written before the publication of the case recently reported by Assistant Surgeon Weeds, U. S. A. (*Nashville Journ. of Med. and Surg.*, April, 1872, p. 156); a case in which there was accurate diagnosis, bold treatment, and most gratifying result, and which deserves a place in the literature of surgery beside those of Dupuytren and Detmold, referred to by our author.

Sixty pages are devoted to the eye and ear, their diseases and injuries and operations required.

In the succeeding chapter on the "Surgery of the Nose," in treating of rhinoplasty, when the entire nose is gone, the author describes as the first

operation, one "for the closing of the nasal chasm," an operation which has not been thought necessary, but which is regarded as "preliminary and essential to success."

In the operation for harelip no pins are used, and silk is preferred to silver wire for sutures.

It is said of operations for the removal of the tongue, "most of the cases have terminated fatally in a very short time; and, notwithstanding the statements to the contrary, we must be permitted, for the present, to doubt whether any have made a complete and final recovery."

In removals of the upper jaw, free incisions without special regard to any after-scarring are preferred, as also preliminary ligaturing of the carotid.

The best summing up of the relative value and applicability of laryngotomy and tracheotomy that we have ever seen, is that made by Prof. Hamilton, as follows:—

"Laryngotomy, practised at the crico-thyroid space, is preferable in all cases of apnea from drowning, from the inhalation of mephitic gas, hanging, cedema glottidis, abscess, and ulcerations of the larynx, in most cases of intra-laryngeal growths, and whenever foreign bodies are lodged in the ventricles.

"Thyrotomy, with or without incision of the crico-thyroid ligament, may be substituted for laryngotomy, so called, in certain cases of intra-laryngeal growths, when, in the opinion of the surgeon, it would be difficult to remove these formations safely and thoroughly without having at the moment a perfect view of their attachments.

"Tracheotomy above the isthmus of the thyroid gland is to be preferred in all cases of diphtheria and of croup, when the gland is not in a condition of hypertrophy. Tracheotomy below the isthmus will be reserved, therefore, for those rare examples of diphtheria or croup accompanied with hypertrophy of the thyroid gland, and for those equally rare examples in which the surgeon undertakes the removal of foreign bodies impacted in either the right or left bronchus."

In the article on "bronchocele," a page is devoted to a statement of the author's observations in the Valais Canton, Switzerland; a statement very interesting, but possibly a little out of place, considering the size of the work and number of subjects requiring treatment.

In operating for the relief of "distortion of the neck from burns," we are told "that we cannot remedy, completely, such deformities," and "should content ourselves with moderate attempts to improve the condition, by small and well-applied incisions, for which only small tegumentary flaps will be required;" and well-merited censure is passed upon those surgical writers who "have given us wood-cuts, professing to represent the appearance of patients before and after operations," which "were false representations."

As illustrative of the relative value of the knife and caustic in the treatment of cancer of the breast, a case is mentioned in which "during a period of about eight years a lady had a scirrhus, which originally occupied the breast, removed seven times," six times by the knife and once by caustics, the recurrence in the former cases never occurring in less than a year, in the latter "almost immediately." Is it not probable that microscopic examination would show that this was a case of sarcoma instead of carcinoma?

After the removal of the breast, every effort is directed to be made toward securing union by adhesion, "since experience has demonstrated that, the more speedily the wound closes, the less will be the chances of the

recurrence of the malady." Evidently, while believing in a local origin of the disease, our author does not accept one conclusion that has been drawn therefrom, that the more completely the breast with the skin covering it is removed, and the larger the wound that is to heal by granulation, the more likely is it that there will be no recurrence of the disease.

The chapter on "Hernia" is interesting and valuable. An unfavourable opinion is expressed of the value of the various operations that have been devised for the "radical cure," which are declared to depend for their "success upon those temporary products of inflammation which constantly disappear on the restoration of the tissues to a condition of health, and which disappear all the more rapidly where they are subjected, as in the present case, to an unremitting strain and pressure."

Of the several causes of strangulation, the "sudden descent of an unusual amount of intestine or of omentum, or of other viscera," and a congested, inflamed, and swollen condition of the viscera in the sac, are "by far the most common, and the most efficient."

The consideration of "vaginal cystocele and rectocele," among hernias, seems somewhat out of place, although in the strict sense of the term they are varieties of hernia; we think it would have been better to have treated of them in the chapter on the surgery of the female genito-urinary organs.

Injections in the treatment of "psoas, vertebral, and lumbar abscesses," are not favourably considered: "Indeed, I have never seen any benefit from either tents or injections at any period of the progress of this class of purulent collections."

It is to be regretted that, as the last touches were not put upon the work until the first of July of the past year, no reference has anywhere been made to the use of the subcutaneous aspirator, which has been so successfully employed in tapping the chest, the bladder, the knee-joint, and abscesses in various parts of the body.

With reference to "haemorrhoids," a point or two may be noticed—horse-back-riding is not believed to have any decided influence in producing them; in opposition to the majority, the author does not approve of opening the external variety when inflamed, but would leave them "to subside slowly under absorption, or perhaps to suppurate, the latter of which is the least frequent result;" and suspected pyæmia is mentioned as having occurred in one case under observation, which however terminated favourably. Recently in Cincinnati, death from septicæmia followed the ligation of internal haemorrhoids, and we are familiar with the particulars of a case fatal from tetanus.

The last two chapters of the book are devoted to the "Surgery of the Genito-Urinary Organs," male and female; "congenital defects of the urinary apparatus" being first treated of. No reference is made to Maury's cases of operation for the relief of exstrophy of the bladder, Ayres's, Holmes's, Bigelow's, and Wood's being mentioned, and the sentence added that "we know of no other operations for the relief of the deformity which can be pronounced to be even partially successful."

In the treatment of "organic stricture of the urethra," decided preference is expressed for "gradual dilatation;" "electrolysis as a means of cauterization and dilatation" being pronounced "painful, uncertain, and liable to be followed by peri-urethral abscesses," and possessing "no compensating advantages."

Respecting "lithotripsy and lithotomy," it is stated in general,

"1, that lithotripsy is most easy of execution and most successful in women;  
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2, in adult males, especially in those of middle life, whose urethrae and bladders are in a tolerably healthy condition; 3, in cases where the stone is small, phosphatic, or brittle; or, if we speak with reference to age alone, it may be said that lithotripsy is to be reserved especially for those examples of stone in which the age of the patient is over fifteen or seventeen years.<sup>1</sup> While, on the other hand, lithotripsy is peculiarly difficult, and sometimes wholly inapplicable: 1, when the urethra is strictured or exquisitely irritable; 2, when the bladder is very irritable, inflamed, ulcerated, contracted, hypertrophied, or sacculated, or when it is in a condition of extreme atony; 3, when the prostate is much enlarged, as so often is found to be the case in old age; 4, when a pretty large stone is associated with a narrow but healthy urethra, a condition which sometimes obtains in childhood and infancy; 5, when the stone is of very great size, or very hard, or encysted; 6, when there are a large number of calculi; 7, when the kidneys are suffering from serious organic disease, or the general health is greatly impaired."

In cases of vesical calculi in the female, those stones that "cannot be removed by forceps without dilatation, and which can be completely crushed, demand lithotripsy;" while in other cases we conclude that the vesico-vaginal operation is preferred, though it is not so stated definitely. In the treatment of "hydrocele," "the long incision" is preferred; injections of iodine being stated to be followed by quite as many failures as successes. For the relief of "varicocele" the "removal of a large tegumentary flap" from the scrotum is advised, ligation of the veins of the cord "being liable to fail altogether, and in no instance probably have either of the methods ever accomplished a complete cure."

In the securing of the pedicle after ovariotomy the "whip-cord ligature, applied as I have already directed" (by transfixion and tying separately upon opposite sides), is believed to be the method which will answer all the exigencies in the largest proportion of cases. The usual statement is made respecting the utter failure of therapeutic agents in effecting the removal of fibroid tumours of the uterus. The recent experiments of Hildebrandt<sup>1</sup> with ergotin subcutaneously administered may cause an entire change of opinion upon this point. "Extirpation of the uterus" is refused a place "among legitimate surgical expedients."

As a whole, Prof. Hamilton's latest work is one that will add to his already high reputation. It is not, we think, for students the best book of the kind in our language; nor can it ever be regarded as a substitute for a surgical library; but it is full of valuable practical suggestions and directions, and as the embodiment of the results of the long study and experience of an eminent surgeon it should be in the possession of all who have occasion to treat surgical diseases and injuries.

P. S. C.

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ART. XX.—*Diseases of the Throat: A Guide to the Diagnosis and Treatment of Affections of the Pharynx, Oesophagus, Trachea, Larynx, and Nares.* By J. SOLIS COHEN, M.D., Lecturer on Laryngoscopy and Diseases of the Throat and Chest, in Jefferson Medical College, Philadelphia, etc. etc. With 133 Illustrations on wood. 8vo. pp. xvi., 582. New York: William Wood & Company. 1872.

WE have read this work with much satisfaction and take pleasure in inviting to it the attention, not only of physicians specially interested in

<sup>1</sup> See this Journal, Oct. 1872, page 567.

the subjects of which it treats, but of general practitioners. It is a work adapted also to the student as well as to the practitioner. The former will find it an admirable treatise upon the affections which it considers, and the latter a practical guide to their treatment.

As will be seen by its title the treatise is a comprehensive one, and for that reason it is all the more welcome. We may say, indeed, that it is really needed. Subjects are here considered, which are intimately related to those commonly treated of in works on diseases of the throat, but which are not usually found in them, and for information concerning which, special treatises, or general works on surgery, must be consulted. A work like the one before us, therefore, if written by an intelligent, industrious, and conscientious practitioner, cannot but be a useful one. Dr. Cohen seems to possess all three of the qualities mentioned, and exhibits, moreover, as claimed in the preface, "an honest endeavour to interpret facts and observations as they appeared in the light of his own understanding." With this latter characteristic, which finds expression throughout the book, comes, naturally, a "record differing in some respects from the records of others;" but, with the ample experience of the author, this only heightens the interest of the work. We may add that, to a thorough knowledge of his subject, the author adds a readiness with his pen and a faculty for description which are noticeable everywhere, and which are by no means always inseparable from valuable medical treatises. One therefore finishes the perusal of the book with a feeling of freshness and of satisfaction, which a mere compilation, however good, could hardly afford.

A few words from the preface will give a more precise idea of the design of the work.

"The limits of a moderate-sized volume preclude the composition of an exhaustive treatise on the subject of Diseases of the Throat. It has been thought advisable, therefore, while presenting a comprehensive view of the entire field, to dwell longer upon subjects which are important by their frequency and by the fresh light shed upon them by recent investigation; and to treat concisely of those points which by their infrequency, on the one hand, or their thorough discussion in the standard medical works of the day, on the other, seem less to call for amplification."

The work contains fifteen chapters. The opening one is on diseases of the throat in general, and contains a description of the appearance of the mucous membrane of the throat in health and in slight deviations from the normal condition, and judicious cautions to physicians in regard to mistaking the result of slight irritation of the membrane for serious disease. The chapter includes a statement of the causes of irritation leading to inflammatory affections of the throat, in which the simple inhalation by non-smokers of an atmosphere impregnated with tobacco smoke is mentioned as an exciting element.

The second chapter treats of the importance of ordinary inspection of the throat, of the anatomy and the histology of the larynx, and of laryngoscopy and rhinoscopy. To these two arts an admirable guide is afforded. The general practitioner will be surprised to learn what portions of the throat may sometimes be brought to view by the use of the tongue-depressor, or even by the voluntary efforts of the patient.

"Sometimes we can even see the upper circumference of the entire larynx, especially if the epiglottis be titillated with the tip of the tongue-depressor so as to excite a slight motion of gagging. Some patients depress their tongues and open their mouths so well, that, looking down upon the parts, we can see

these structures without the use of any tongue-depressor at all. Cases are on record, few in number, it is true, in which, by such voluntary effort of the patient, a view has been obtained of the larynx down to the vocal cords."

Our author gives the following definition of the glottis:—

"They [the true vocal cords] form, with the space between their free edges, the *glottis*; their sharp borders are the *lips of the glottis*, and the chink or fissure between these lips is the *rima glottidis*. These terms should not be confounded."

Dunglison's definition of the glottis is this: "A small oblong aperture, in the larynx, comprised between the *chordæ vocales*." Palmer's is this: "A small oblong aperture situated at the summit of the larynx or windpipe, between the vocal chords."

These two definitions are not sufficiently comprehensive, but we are inclined to prefer a definition of the glottis which would make it an aperture, simply, as tending to simplicity. We would say, with Dr. Cohen, "close the glottis," "open the glottis," "a wide glottis," (page 59) and "changes of form produced in the glottis" (p. 63). But, instead of "open the chink of the glottis" (p. 60), we would say, *open the glottis*. Instead of "lessening the length of the chink of the glottis" (p. 63), *lessening the length of the glottis*; and we would substitute the words *the vocal cords* for the word "glottis" in the expressions, "tension in the glottis" (p. 63) and "lips of the glottis" (p. 56). Instead also of "floor of the glottis" (p. 386) we would say, *superior surface of the vocal cords*. The expression which Dr. Cohen had previously used, namely, "floor of the upper laryngeal cavity," seems to be better than "floor of the glottis." We also prefer the expression "*spasm of the larynx*" to "*spasm of the glottis*" (p. 396).

We present the following as a specimen of the happy faculty of description possessed by Dr. Cohen. He is speaking of the mucous membrane of the larynx.

"The epithelium is the ciliated variety found covering the whole mucous respiratory tract, with the exception of a narrow stripe of the squamous epithelium of the œsophagus, which mounts the larynx posteriorly, continues down the internal face of its posterior wall, and covers the free portion of the true vocal cords from one end to the other. On the inferior face of the cords, the ciliated epithelium is again encountered."

In chapters III., IV., V., VI., and VII., are considered Erythematous, Phlegmonous, Ulcerative and Membranous Sore-throats, Diphtheria, the Sore-throats of the Exanthemata, the Syphilitic Sore-throat, and the Sore-throat from Burns and Scalds.

In tonsillitis, Dr. Cohen thinks highly of the scarification or puncture of the inflamed gland.

"A good method is to pierce the tonsil in its central portion with a long, narrow, sharp-pointed bistoury, and to cut the instrument out, horizontally, by an incision through the gland into the mouth."

Although these incisions are not universally recommended, he feels convinced that they are very beneficial. The relief is often immediate, and the suppurative process is frequently averted.

A few cases are appended to the description of this affection and termed "Ulcerative Tonsillitis." We do not perceive that the suppurative process took place in these cases, and yet, if there was simply superficial ulceration of the tonsils, the cases do not illustrate any pathological condition described by the author.

The remarks on Membranous or Herpetic Sore-throat, and on Diphtheria, are excellent, and the same may be said of the chapters on the Sore-throats of the Exanthemata, on Syphilitic Sore-throat, and on Sore-throat from Burns and Scalds.

Dr. Cohen does not recognize the scrofulous diathesis as an origin of deep ulcerations of the pharynx and larynx: at all events, he makes no mention of it as a source of such lesions, although he remarks upon a destructive process in the nasal cavity which is engrafted upon this diathesis. But some intelligent observers certainly consider that this condition of the system may be the origin of pathological processes in the throat which may approach, in destructive action, those met with in the later forms of syphilis. It must, however, be acknowledged that, frequently, the term scrofulous is employed because no special cause for the lesions can be discovered. It is, moreover, very possible that some of these cases may be really due to syphilis, the earlier manifestations of which were either so slight as to be overlooked, or were subdued by remedies, given soon after the appearance of the primary sore, in an amount not sufficient to entirely eradicate the constitutional affection. The determination of the cause in such cases must therefore, necessarily, be exceedingly difficult.

Professor Isambert, of the Paris School of Medicine, has contributed to recent numbers of *L' Union Médicale*, a series of articles on the strumous ulcerations of the pharynx and larynx, and the essay has been published in the *Practitioner* for January, 1872. In these papers a distinction, of obvious clinical and therapeutic importance, is drawn between those lesions of the larynx and pharynx which depend on specific infection, or on tuberculosis, or on malignant degeneration, and those which, more benign in their course, are of simple strumous origin. The writer says that he acquired his knowledge of this discrimination through the importance of anti-syphilitic treatment against certain ulcerations, and from the discovery that tonics and not alteratives were needed. Admitting that in a certain number of cases, the scrofulous lesions may be complicated by syphilitic or tuberculous manifestations greatly involving the diagnosis, the author gives characteristic signs by which to determine the more benign type of the disease.<sup>1</sup>

In M. Mandl's late work,<sup>2</sup> "Angine Scrofuleuse" may be found mentioned, and we think it worth while to translate a portion of the remarks made upon this subject.

"Hamilton first, and after him several authors (Fougère, Isambert), have described an ulcerative angina of a scrofulous nature. The affection commences in an insidious manner; the tissues assuming at this stage a violet or wine color. Examination of the throat brings to view a yellow pimple which soon ulcerates. There exist sometimes other concomitant manifestations of a scrofulous nature, such as tonsillitis. The soft palate is more frequently the seat of an ulcerative process, according to Fougère, and the posterior wall of the pharynx according to Isambert; then come the pillars, the uvula, and the tonsils. The edges of the ulcerations, which are not very deep and are indolent, are thin, rounded, irregular, sinuous and fringed. The base is uneven, mammillated, fungous, sometimes grayish and sanguous, at other times yellowish and covered with muco-purulent matter. The mucous membrane in the vicinity of the ulceration is somewhat inflamed, and occasionally fungous granulations are noticed. The honey-combed and mammillated appearance of these ulcerations is almost identical with that of the *plaques muqueuses*. The submaxil-

<sup>1</sup> Quoted from the Boston Medical and Surgical Journal of March 28, 1872.

<sup>2</sup> *Traité Pratique des Maladies du Larynx et du Pharynx.*

lary and parotid glands are sometimes engorged ; there is dysphagia, the food returns through the nose, and the voice is nasal. The course is chronic, and perforations take place, followed by cicatrices, bridles, and especially adhesions between, for instance, the veil of the palate and the posterior wall of the pharynx.

" All observers are not agreed as to the scrofulous nature of this affection. Some (Med. Soc. of Vienna, 17th February, 1871) see in these deviations from the normal condition only the result of hereditary syphilis. This remarkable circumstance may be cited in support of their opinion, namely, that these ulcerations are met with most frequently in adults, and never in infancy, so susceptible to scrofulous affections. Those who defend their scrofulous character put forward as an argument the inefficiency and even the danger of iodo-mercurial preparations ; while hygienic influences, and especially cod-liver oil, in large doses, give the very best results. But it is known that cases of syphilis occur, as Dolbeau has remarked, in which tonics alone are employed, and in which mercurial preparations are harmful, as all physicians admit. This question, therefore, seems to me to merit constant investigation."

Smeleider also<sup>1</sup> says :—

" Scrofulosis gives occasion in some cases to diseases of the larynx. Hitherto there have only been observed sclerosis and increase of volume of the mucous membrane, and of the submucous cellular tissue ; these may produce obstinate constrictions ; but they may also, without doubt, proceed to ulceration."

Then follows an account of the case of a girl, of fourteen years of age, who had ulcerations upon the posterior wall of the pharynx and upon the soft palate. Local treatment was followed by cure with an adhesion of the soft palate to the posterior wall. The patient subsequently had a large, deeply-burrowing ulcer, upon the dorsum of the tongue. Syphilis was suspected ; but an examination, and treatment by mercurials, gave negative results. A cure was, however, effected by iodide of potassium internally, and by a solution of iodine and glycerine locally. Concerning this case, Smeleider remarks :—

" For simple lupus the development and the cure were too speedy. In such infiltrations the diagnosis, especially between syphilis, lupus, and scrofulosis, is often very difficult."

To return to our author. The special affections of the tonsils, the palate, and uvula, the pharynx, and the oesophagus, are next treated of in separate chapters.

In the removal of the tonsils, when permanently enlarged, Dr. Cohen prefers excision by the knife, assisted, in the usual manner, by the double vulsellum, to treatment by iodine, etc., by caustics, or by excision with any of the various tonsillotomes.

" The subject of cleft palate, though belonging to the surgery of the mouth, rather than to that of the throat, is mentioned here, merely to draw attention to the success attained in splitting the edges, instead of paring them, the operation being believed to be unique in that particular."

In speaking of naso-pharyngeal tumours, and the operations for their removal, Dr. Cohen refers to the method proposed by Langenbeck, which consists in the resection of the nasal process of the upper maxillary bone and the nasal bone. This operation is not, however, we may remark, that adopted by Langenbeck for the removal of tumours resembling the one removed by Verneuil, in the case copied by Dr. Cohen from the *Gazette des Hôpitaux*. To these tumours Langenbeck gives the name retro-max-

<sup>1</sup> Caswell's translation, p. 161.

illary, considering them much more formidable than the ordinary nasopharyngeal polypi, and has devised for their removal his osteo-plastic resection of the upper jaw, which exposes, in a wonderful manner, the various ramifications of these truly polypus-like growths, and enables the operator to replace the bone after their removal. (*Deutsche Klinik*, 1861, p. 281.) Langenbeck employs this operation occasionally, also, for nasopharyngeal polypi.

The affections of the nasal passages are satisfactorily treated of in a chapter of eighty-two pages. The author's experience in the study and treatment of these troublesome affections has been ample, and its record is most welcome.

In the portion relating to coryza the following statement appears:—

"In the healthy state the mucous membrane of the nose does not secrete mucus, or even serum. Many individuals have no occasion at all to use the handkerchief for the removal of any nasal secretion, unless it be excited by the inspiration of dust, irritating vapours, etc. The membrane is constantly moist, it is true, but it is not by reason of any secretion, but in consequence of an absorption of the moisture condensed upon it from the expiration. When the membrane is chilled by the cold, be this by its inherent properties, or by the influence of the terminal fibrilla of the nervous system, the mucous membrane no longer absorbs this halitus of the breath, and a portion of this moisture accumulates for a while in the tissue of the mucous membrane, or just beneath it, giving rise to the sense of puffiness or fulness so familiar to all who have suffered from the complaint. After a while these tissues become saturated, and will take up no more fluid, and a process of exosmosis is set up by which the watery constituents of the fluids coursing in its tissue are directed towards the surface, and drip from the nostrils, constituting the characteristic discharge of coryza, which is at first mere water, the exhalation of the moisture in the expired breath."

We confess to reading the above with some surprise. The mucous membrane of the nasal cavity proper, is certainly richly supplied with glands, and we have supposed that they secreted, normally, some sort of fluid.

After a short chapter on the affections of the frontal sinus, comes one on the affections of the larynx and trachea. These receive the consideration due their importance, and one hundred and seventy-four pages are devoted to them. It is probable that the author's experience has been greater in these affections than in any of the others of which the work treats, and this chapter is therefore worthy the special attention of the reader.

Regarding laryngeal tuberculosis, as a primary affection, Dr. Cohen says:—

"The author discards altogether the notion of any distinct disease to be called laryngeal phthisis, whether it be the tuberculous ulceration of the laryngeal mucous membrane so often observed in general phthisis early in the disease, or whether it be the extensive ulcerative chondritis and perichondritis of the older authors. It is altogether doubtful if ever a case existed in which tuberculous disease was confined to the laryngeal structures."

"Simple chronic laryngitis, catarrhal or ulcerative, is often a curable affection; but, on account of its resistance to treatment, or its persistence in spite of it, or its total neglect, proceeding gradually from bad to worse, it will produce the subjective symptoms, and, for that matter, all the objective symptoms also, which writers have been pleased to ascribe to laryngeal phthisis."

And with regard to a deposit of tuberculous matter in the larynx in persons affected with phthisis:—

"The most he has seen, and that very rarely indeed, was one or two, or perhaps as many as three or four, isolated, white spots, the size of a large pin's head, which, in cases of slowly progressive pulmonary tuberculosis, retained their position and appearance upon the mucous membrane of the laryngeal walls, without change, for months and months."

Rokitansky's opinion is very decided against the idea of a distinct tuberculous disease of the larynx. He says:—

"Tuberculosis of the larynx, as a primary and independent affection, is so extremely rare, that we feel inclined to doubt its existence. It is almost invariably developed as a consequence of pulmonary tuberculosis, and then, as a general rule, not until the affection has established itself as pulmonary phthisis, and made considerable progress."

In regard to this secondary deposit of tubercle in the larynx, Rokitansky says, elsewhere,—

"The most common position of tubercle in the air passages (where it is very commonly met with), is the larynx."

The majority of modern pathologists agree, as we believe, with Rokitansky on this point. Of those less modern, Louis may be mentioned as holding a different opinion. He says:—

"I have not, in a single instance, met with tuberculous granulations in the substance or on the surface of the epiglottis, larynx, or trachea; so that inflammation must be regarded as the most frequent cause of the ulceration of those parts."

Of the treatment of croup, Dr. Cohen says:—

"The main principle in view is to sustain strength, while assisting the patient through the natural course of the disease."

He relies principally upon nourishing diet and tonic treatment, with the free use of steam, and, in the severer cases, upon stimulation with alcohol and carbonate of ammonia, and upon the inhalation of the vapor of lime. When an emetic seems to be indicated, he employs alum.

"I have never had occasion to resort to tracheotomy to save the life of a child with croup. . . . It is due to the treatment above narrated to say, that I have seen the life of a patient preserved through it, if not by means of it, for whom the performance of the operation of tracheotomy had been declined by more than one surgeon, as offering no chance of a successful result."

The important subject of growths in the larynx occupies 46 pages.

Concerning the influence of phthisis in the development of laryngeal neoplasms, Mackenzie states, that "neither syphilis nor phthisis, nor any other constitutional condition, appears to favour the growth of these neoplasms."

"My own experience differs very markedly from that of the author quoted. Leaving out of consideration, as he does, those 'imperfect papillary growths' which 'occasionally appear on the posterior wall of the larynx, and on the mucous membrane covering the vocal cords and the inner surface of the arytenoid cartilages in the latter stages of laryngeal phthisis'; and although I do not find with him that 'this is the exception', but rather a frequent occurrence, I have met with a large proportion of cases in which distinctly formed growths, of circumscribed outline, and often of tolerably large size, existed in cases of phthisis at a very early stage, as well as in cases where the ravages of the disease were readily detected on physical examination of the chest."

In a subjoined table of sixty-six cases of growths, occurring consecutively in Dr. Cohen's private practice during the last five years, twenty-two cases occurred in patients with phthisis.

There seems to be a marked difference of opinion among observers regarding this point. While a few, such as Tobold and Mandl, coincide with Dr. Cohen, others, and as we believe the majority, agree with Mackenzie.

It would be satisfactory to have seen a more complete table of the cases of growths which have occurred in our author's practice, in which were stated the age, sex, and occupation of the patient, and the means of removal employed.

Dr. Cohen makes mention of the method of restoring the voice in paralytic aphonia by the external manipulation of the larynx, described by Dr. Oliver in the No. of this Journal for April, 1870, apparently with the impression that Dr. O. supposed that full approximation of the arytenoid cartilages could be made by pressure on the wings of the thyroid cartilage. This, however, is not the case. In the article referred to, partial approximation, only, of the cords was supposed to be produced. Closer approximation was believed to be effected by the action of the in-going current of air upon the cords, in consequence of their valvular form. It seems probable that the means employed were, of themselves, instrumental in exciting the action of the vocal cords, for, in more than one of the cases reported, a vocal sound could be produced while pressure on the wings of the thyroid was being made, and could not be elicited when pressure was removed. Moreover, the fact that sound was produced by inspiration, before it could be produced by expiration, seems to prove that this valvular form of the cords was partly instrumental in exciting their action. It is possible that the action of the laryngeal muscles is stimulated by the manipulation, and that approximation of the cords is furthered thereby. This, if true, would go to show that the method has a value, and that there is little, if any, risk to the vocal apparatus incurred by employing it.

Our author mentions a very large epiglottis as a possible cause of spasmodic cough. Three cases of this affection in three brothers are related, in each of whom the epiglottis was found to be of unusual size. The spasms occurred generally at the table.

"I feel inclined to the opinion that the epiglottis of these gentlemen sometimes becomes impacted into the larynx in deglutition, thus producing the spasm of suffocation; a condition which I have known to occur repeatedly in a young child who was subject to suffocative paroxysms, and whose mother I taught the method of relief by running her finger down beneath the epiglottis and pulling it up. This little fellow was also subject to spasmodic cough. A similar cause excites spasmodic cough in a little child under treatment at the moment of writing.

"A spasmodic cough, of less intensity, sometimes occurs in affections of the ear, the influence being conveyed, probably, through the chorda tympani nerve. Consequently, in cases of obstinate cough, without sufficient cause for it appearing in the throat, the condition of the organs of audition should be carefully examined into."

The last chapter of the work treats of diseases of the neck affecting the deeper tissues of the throat secondarily, such as tumours of the neck, mumps, affections of the thyroid and thymus glands, etc.

A convenient table of reference to the subjects treated of in the text follows, and the book ends with a copious index.

We have only to add that the mechanical portion of the book is excellent; that the paper and letter-press, and the illustrations, which are plentifully supplied, are all that could be desired, and that the volume is, in all respects, a handsome one.

H. K. O.

ART. XXI.—*Recent Systematic Works on Anatomy.*

1. *Quain's Elements of Anatomy.* Seventh edition. Edited by W.M. SHARPEY, M.D., ALLEN THOMSON, M.D., and JOHN CLELAND, M.D. (In two volumes.) London, 1867.
2. *Die Anatomie des Menschen in Rücksicht auf die Bedürfnisse der Praktischen Heilkunde;* Bearbeitet von Dr. HUBERT V. LUSCHKA. (In six volumes.) Tübingen, 1862–1869.
3. *Handbuch der Systematischen Anatomie des Menschen,* von Dr. J. HENLE. (In three volumes.) Braunschweig, 1855—(unfinished.)
4. *Lehrbuch der Anatomie des Menschen mit Rücksicht auf Physiologische Begründung und Praktische Anwendung,* von JOSEPH HYRTL. Eleventh edition. Wien, 1870.
5. *Der Bau des Menschlichen Körpers mit besondere Rücksicht auf seine Morphologische und Physiologische Bedeutung.* Ein Lehrbuch der Anatomie für Aerzte und Studirende von Dr. CHR. AEBY. Leipzig, 1871.
6. *Traité d'Anatomie Descriptive.* Par J. CRUVEILHIER. Fifth edition. Avec la Collaboration de MM. les Docteurs MARC SÉE et CRUVEILHIER Fils. (Three volumes.) Paris, 1871.
7. *Traité d'Anatomie Descriptive.* Par PH. C. SAPPEY. Second Edition. Paris. (Three volumes.) 1867–1872.

THE history of text-books of anatomy is the history of a wide-spread cultivation of medical science. As we cannot conceive of an "Albinus" or a "Vesalius" in any other form than a ponderous folio—such, for example, as we see lying open by the figure of Vesalius in the picture by Hamman, neither can we imagine a "text-book," as we now restrict that term, in any other than an octavo, or the less frequently seen quarto. The size of the editions would appear to be on a kind of inverse ratio to that of the books themselves. Folios occasionally yet appear from the medical press with all the glory of fine circumstance about them; but it is perhaps a spirit of reminiscence that actuates their preparation—one that is little in harmony with the necessities of the hour. These splendid volumes find their true place in the libraries of our societies, while the text which is consulted by the practitioner, and quoted by the anatomist as authoritative, lies between covers of a convenient bulk, and, what is equally to the point, is sold at a moderate rate.

It would appear to be a favourable time when, as we perceive by the books quoted at the head of this article, several representative works have been attracting attention in their new dress, and one remarkable treatise is about approaching completion, to make a few selections from them here and there; to call attention to what we may, without presumption, pronounce their deficiencies; and to indicate that an age which creates a steady and increasing demand for good anatomical writing is one ready to receive kindly much needed improvement in teaching.

The conservatism of the anatomist is so great that his writings are yet marked with a nomenclature which is in great part arbitrary. Prof. Leidy's effort in 1861<sup>1</sup> is, apart from Barclay's scheme of nomenclature in 1803, so far as we know, the only important attempt to simplify the use of anatomical terms. In France Chaussier and others have improved upon

<sup>1</sup> *Elements of Human Anatomy.* Philadelphia, 1861.

the names of Winslow. Sömmerring has also exerted some good influence in the German school. Much, however, remains to be done, especially among the English speaking people, who, on the whole, have been backward in accepting innovations. The English cling tenaciously to their traditions. Douglas's translation of Winslow in 1796; Knox's translation of H. Cloquet in 1830; Birkett's translation of Von Behr in 1846, and in this country Pattison's translations of Cruveilhier in 1844, have never become favourites. As a result of this exclusive spirit the English teaching has been singularly uniform; and about the same modicum of knowledge, however paraphrased, is found in about all the textbooks excepting always the present edition of Quain.

A student who has been thus indoctrinated in his British catechism would find himself imperfectly prepared to answer a series of questions selected almost at random from a continental "anatomie." The cause of this is not difficult to ascertain. The English anatomist has been less content to pursue descriptive anatomy for its own sake than his transmarine brethren, and doubtless if he were asked for an honest expression of opinion would despise the minute studies of the continental observers. He was early satisfied with the condition of the general basis of descriptive anatomy, and his main object was to apply it to the necessities of practice. Hence we find that the writings of John Bell led to the foundation of surgical anatomy, as the studies of John Hunter ended in the school of physiological anatomy; and although these labours have added undying lustre to the British name, they have tended rather to retard than to advance the cause of systematic anatomy as now understood. Knox in 1844 lamented the absence of a good descriptive anatomy. This want was in part supplied by Jones Quain's elements. Appearing as early as 1828, it became the basis of much which subsequently appeared; its editions have steadily increased and lately have been graced with the labour of conscientious editorial talent. The American edition of Quain, by Prof. Leidy, is worthy of a place in the history of the work, and we are sure our readers would have been pleased had Leidy's notes been retained in the London edition now before us.

We have taken Quain, therefore, as the representative of English anatomy. It retains its modest title—Elements of Anatomy—the editors restricting their labours to bringing the histological portions up to the present time, and in introducing new matter to the original sheets in the form of appendices rather than interpolations; a method of editing which, in our judgment, shows great good sense.

From the Germans we have taken Henle to be the representative book, and have ventured to place on either side of it Luschka and Hyrtl; two works very different in treatment. Luschka is professedly an applied anatomy, though with the exception of the descriptions of the minuter parts is really an extensive treatise, having purely descriptive features. Hyrtl's *Lehrbuch* is a succinct presentation of the anatomy as taught in this day in Germany; its type is elementary. Much curious and valuable learning is given in the shape of notes, while the literature and history are well nigh perfect. We have this high authority for accepting Henle as the leading German work. He says of it: "It is an anatomy in which is displayed both in matter and style the very highest ability." It will be remembered that Henle was one of the collaborators in the production of the *Encyclopedia of Anatomy*,<sup>1</sup> a work which marked the re-

<sup>1</sup> This is based upon *Der Baue des Menschlichen Körpers* von Samuel Thomas von Sömmerring, 1800.

naissance of the German school. His *Handbuch* may be said to be the completion of a plan begun at that time.

The work of Aeby is admirably conceived. It embraces the design of the framework of man—grasps vigorously at the essentials of a philosophical plan—and to this end is well illustrated with diagrammatic schemæ and wood-cuts of original drawings from nature. A number of elaborate tables of nerves, muscles, etc., are among the novelties of this volume. Special attention is given to homologies throughout.

Cruveilhier has been chosen as the French anatomy. It is more difficult here to select a master-text. The great work of Sappey is, we understand, the favourite one with the profession in France. We have observed that Dr. Austin Flint, Jr., in his recent publication upon the *Physiology of the Nervous System*, has relied in great part upon Sappey for his descriptive anatomy. His claim, therefore, as a first-class authority is conceded. But there is little that is distinctive in his plans of teaching from that of Cruveilhier. Both authors are given to make extended physiological comments, and employ throughout the same nomenclature in all essential points, excepting perhaps in the arrangement of some of the branches of the nerves, among other features, where we conceive the departure from the classification of Cruveilhier is not always an improvement. We would be failing in our purpose were we to omit mention of the beauty of Sappey's illustration of development of the cranial bones, especially the superior maxillary, sphenoid, and temporal, as well as the relations of the general view of the face with the base of the skull, in fig. 64, vol. i., and the plan of construction of the atlo-occipital articulation as compared with that of lower animals, figs. 187 to 190, p. 530, *Ibid.* Hirschfeld, we observe, follows closely the descriptions of Cruveilhier.

We will confine ourselves, in the space afforded us, to the osseous, muscular, and nervous systems; and will begin with the former.

*Osseous system.*—The descriptions of the bones in Quain, and the English authorities generally, are inferior to those of the continental writers. They read like abridgments from some more extended narration. With the Germans, however, particularly Henle, we detect a style which denotes for the author an intimate acquaintance with the bones themselves. We feel that the writer has made himself an authority by study. By way of illustration of the exactness of the account of the *temporal bone*, we may mention the identification of the sutures marking the primary divisions of the bone. It is not a little odd that the suggestive sections of the bone on page 128 (*Knochenlehre*) should not have influenced the editors of Quain to modify their account of the anterior wall of the petrous portion of the bone, or to have introduced into the description of the "Glaserian fissure" (itself a name unworthy to be retained) the curious relation between it and the roof of the tympanic cavity (*tegmen tympani*). The *tegmen* is not mentioned by the English writers, though having an important part to play in the composition of the bone, as well as presenting some practical bearings (for the latter see Hyrtl, p. 255). The interesting observation that the canal for the tensor tympani muscle (*canalis musculo tubarius*) is within the *pars tympanica*, is likewise unnoticed. Equally ignored is the "tympanic spine" described by Henle<sup>1</sup> two years before the publication of Quain. Neither do English observers fare better. No allusion is made in any text-book to the rudi-

<sup>1</sup> *Tageblatt der 40 Versammlung deutscher Naturforscher und Aerzte in Hanover*, 1865, 68.

ment of the tympano-hyal bone seen to the anterior and inner side of the styloid process.<sup>1</sup> But a more glaring defect, as we conceive it, lies in the general divisions of the bone. The student can trace little that is in common with the descriptions of the ossification of the immature and the mature bone. Indeed, he can form a very imperfect notion of the relation of the auditory process, and the vaginal process (the "tympanic plate," Q) with the primordial tympanic ring, or of the variant significance of the mastoid and spinous processes. Neither is Ayrtl free from this conventionalism. Blumenbach<sup>2</sup> gives us a far better method of description. Aeby, in his descriptions of the cranial bones, not content with basing them upon the primal centres of ossification, goes to an extreme, we think, in making the detail of the obscure theory of vertebral segmentation of the skull apply to the descriptive anatomy of the separate bones. Thus, in treating of the temporal bone, he divides his account into a *vertebral* (*i.e.*, squamosal and tympanic portion), and an equivalent to the *auditory* (*i.e.* petrous) portion. The origin of the *tegmen tympani* from the petrous division is illustrated in an unique figure (fig. 84, B., p. 203), and its relations to the glenoidal fissure on p. 205 well shown.

The fact of which we have been occasionally reminded that the labour devoted to writing treatises bears an imperfect relation to their completeness, is seen in so simple a fact as the development of the *frontal sinus*. Blumenbach<sup>3</sup> asserts that it is formed about the end of the first year. The development may be retarded by disease, particularly hydrocephalus. Scarpa,<sup>4</sup> while stating that the sinus is absent at birth, "has forgotten that Albinus described many of these (mucous) sinuses in the fœtus at nine months." According to Henle the sinus does not appear until the second year, and to Sappey, from the sixth to the eighth year. Humphry<sup>5</sup> places the date of its appearance as late as that of puberty. Now, with the exception of Heule and Sappey already referred to, the text-books with which we are acquainted do not allude to this point. The student desiring information would find therein little or nothing to his satisfaction. Yet it is a feature of some importance in the localization of diseased action.<sup>6</sup>

*The ligamentous system.*—We have selected the tibio-femoral articulation for study. The account of the mechanism of the knee-joint as given by Quain is chiefly an addition to the text by the editors, and like all similar work is admirably done. If we were inclined to be critical we might wish that the spiral character of the sum of the articular planes (a plan of construction in full accordance with the latest investigation) had been more explicitly stated. The description of the crucial ligaments as the true internal laterals to the condyles it were well to insist upon. The position of these ligaments (the anterior tense in extension, and relaxed in flexion; the posterior relaxed in extension and tense in flexion) are ad-

<sup>1</sup> An Introduction to the Osteology of the Mammalia. By W. H. Flower, London, 1870.

<sup>2</sup> Geschichte und Beschreibung der Knochen des Menschlichen Körpers. Göttingen, 1786, p. 121.

<sup>3</sup> Prolus. anat. de sinibus frontal., 1779. See also *supra*, p. 101.

<sup>4</sup> Minute Anatomy of Bones, trans., by Dr. J. D. Godman in Anat. Investigations, 1824, p. 129. "The frontal sinus is the only one whose rudiments are obscure in the fœtus of nine months, yet it is not entirely wanting."

<sup>5</sup> Human Skeleton, 246.

<sup>6</sup> See the papers on Rickets by Dr. J. S. Parry, in late numbers of this Journal.

mirably illustrated by diagrammatic figures. But how tardy the implied acknowledgment of the accuracy of Jno. Bell's<sup>1</sup> description and figures fifty years before!

The brothers Weber (1836) in their well-known researches upon the mechanism of the articulation inaugurated the theory of spirality and described the crucials as above given. Henle (p. 157 *Bandelehre*) qualifies the accepted notion by stating that the anterior ligament is tense in extreme flexion. Figure 122 would appear to inform us that the posterior crucial may be also tense in extension. It is amusing to notice in Cruveilhier, who follows the text of the Webers, at the same time using the wood-cuts copied from Henle, that the figure contradicts the text it is designed to illustrate.<sup>2</sup>

*Fasciæ*.—The best descriptions of fasciæ are undoubtedly found in French works. The chapter upon *Aponeurology*, in editions of Cruveilhier prior to the present (it is here, unfortunately as we believe, omitted) is the most complete to be found anywhere. Perhaps the source of this excellence can be traced to the writings of Bichat, who may be said to have created this division of anatomy.

The relations of the fasciæ to surgical anatomy are so important, and remembering the almost independent origin of the continental and English schools, we are prepared to meet with some discrepancies of description. Without noting the synonymy, we can sufficiently illustrate this portion of our subject by a few notes upon the *femoral region*. The division of the superficial fascia into two layers, the first fatty, the second membranous; the deep fasciae with its pubic and iliac portions; the saphenous opening as an aperture in the fascia lata, are familiar to all. It is of the deep layer of the superficial fascia we will now speak. The English anatomists write of it in a general way, attributing to it none of the parts of interest in the anatomy of femoral hernia. Quain states that it unites with the superficial layer at the line of the groin—a fact we believe to be credited to Struther: the cribiform fascia pertains to the superficial layer. Hyrtl describes the deep layer as soon lost upon the ensheathing deep fascia. Sapppéy mentions a duplication of the femoral aponeurosis at the level of the “crural ring” (internal femoral ring, Henle), but gives no account of such, as complicating the ensheathing fascia of the limb. Henle describes the superficial layer, and we are inclined to accept his account as the most satisfactory, as a part in common with the general cellular envelope of the lower extremity. The so-called deep layer is in his judgment the superficial layer of the proper femoral fascia, which descends as an apron from the tendon of the external oblique muscle, from the anterior superior spinous process of the ilium, as well as from the internal extremity of the crural arch. Its function is to cover in certain structures, viz., the tensor *vaginae* femoris muscle, the sartorius muscle and the vascular trunks in their sheath, all of which lie upon the deep femoral fascia covering muscles which pass to the thigh from the pelvis. The main points of connection of this apron of fascia are, first, where the tensor *vaginae* is inserted into the deep fascia; secondly, where a process passes downward along the side of the tendon of the sartorius below the knee-joint; thirdly, where it unites with the deep

<sup>1</sup> *Engravings of the Bones, Muscles, and Joints*, 1816, p. 117, figs. 1 and 2.

<sup>2</sup> Gray and Holden, in stating that both crucials are relaxed in flexion and made tense in extension, are clearly in error. The latter (p. 482) makes the posterior crucial act as a check to limit flexion, *i. e.*, when relaxed! The truth is, the posterior limits extension, the anterior limits flexion and rotation of the tibia inward.

fascia to the inner side of the femoral vessels. The femoral canal is described as lying between the two layers of the femoral fascia and receives the vessels of the same name, the internal femoral ring is its point of exit from the pelvis; the external femoral ring is the saphenous opening. The cribriform fascia is referred to as a portion of the general superficial fascia lying over the outer ring.

The descriptions of the fasciae about the *ankle-joint* are worthy of notice. Quain, following Henle, gives in addition to the internal and external ligaments, a transverse ligament above the joint and a crucial (Y-shaped) ligament below it. The latter possesses two fasciculi, one arising from the outer side of the calcaneum, defines a loop over the tendons of the extensor longus digitorum muscle to be inserted into the front part of the calcaneum; the second arises from the loop of this to pass inward to gain attachment to the inside of the foot. Sappey says that the anterior inferior branch of the Y-passes upon the tendon of the anterior tibial muscle and serves to fix it to the inner side of the tarsus. Its ascending branch appears as a prolongation of the initial portion, and forms with it a ribbon-like extension which constitutes the anterior annular ligament proper which holds the extensor tendons in position to the inferior extremity of the tibia. This description thus includes the transverse ligament of Henle and Quain. According to Cruveilhier the lower band instead of being inserted upon the inner side of the foot becomes continuous with the plantar aponeurosis. How different from this is the account of Holden! The transverse bands, according to this writer, consist of two straps which cross each other over the front of the ankle-like braces. One brace goes from the malleolus externus to the scaphoid and internal cuneiform bones, the other runs from the cuboid and os calcis upward and inward to the inner border of the tibia. That this part is not without value to the practitioner we learn that "it is the excessive strain of this ligament that occasions the pain in sprain of the ankle." Now the transverse ligament as described by Henle would not be subjected to strain in this accident.

*Myology.*—The popliteus muscle, the intercostal muscles, and the flexor brevis digitorum muscle have been selected as examples of the differences in description in this department.

The *popliteus muscle*, like many other parts in human anatomy, has been described in a conventional manner; few care to examine for themselves, either in the often neglected writings of the early anatomists, or the less frequently opened book of nature. The usual account gives it an origin over the outer condyle and an insertion into the triangular surface of the tibia above the posterior oblique line. Its connections with the posterior capsule in modern text-books prior to Henle receives no mention whatever; the fixation of the tendon of the muscle by bands extending both upward and downward therefrom are not alluded to, and its function that of a flexor and a rotator of the tibia inward the only one thought worthy of mention. Knox (note at p. 144, trans. of Cloquet) credits Winslow with the knowledge that the groove upon the outer side of the external condyle receives the tendon of the popliteus muscle only in flexion.<sup>1</sup> Quain (p. 286) accepts the correctness of this view, without acknowledging it as an interpolation to the text of the previous editions. In the same manner the present edition admits the posterior ligament of the joint as a source of origin, apparently from Henle (this is given in

<sup>1</sup> We have been unable to find in Douglas's trans. of Winslow any allusion to this fact.

Winslow's description, 1735, and is mentioned in the last edition of Cruveilhier and Sappey), though without allusion to that or other authority, while on p. 158 (fig. 140, B) a cut copied from Arnold is seen in which bands fix the tendons of the muscle above and behind to the external condyle, and below to the head of the fibula. Nothing in the description of the muscle (p. 285) would lead the student to suppose that the bands in question had an existence. With respect to the function of the muscle, we find that Goodsir<sup>1</sup> has left a posthumous note which is totally at variance with the accepted one. This writer asserts that "the muscle takes its *origin* from the tibia, and is inserted into the femur. Its opposite points of attachment are nearer one another in the extended than in the flexed condition of the limb. Hence the muscle acts as an extensor, and not as is usually related as a flexor muscle."

The function of the *intercostal muscles* has always been a source of controversy. We can refer the reader to Quain for a most admirable notice of this discussion. None equal to it appears in other writers, excepting perhaps the very full description and copious references of Sappey.

The observation made by Henle<sup>2</sup> that the ribs are moved in inspiration upward from about the sixth rib, and downward from below it, is one that we are already familiar with through the writings of Sibson. No other writer that we recall alludes to it.

The accounts of the *flexor brevis digitorum* are to be mentioned here. Sappey aptly remarks that "the short flexor of the thumb is of all the muscles the one whose existence is the most arbitrary." The English manner of dividing this muscle into two heads, a superficial and deep, finds no favour either with Cruveilhier, Sappey, or Henle. Hyrtl, on the other hand, gives substantially the same description as Quain. Cruveilhier excludes the deep head from the muscle and places it—under the name of the *trapezo-phalangeal* muscle—in the same natural division as the *adductor pollicis*. He strengthens his position by stating that both these muscles, as a rule, receive their nerves from a different source from the thenar muscles proper, viz., the deep palmar branch of the ulnar nerve. Henle considers the muscle under discussion as a small tractor placed between an internal and an external bundle of fibres, constituting respectively the *abductor pollicis* and the *adductor pollicis*. Each of the last-named muscles has relations to the sesamoid bone—bearing tendons, which our author in part identifies with the short flexor. Thus we have three methods of studying this muscle. An explanation of one of them would naturally suggest some mention of the others.

*The nervous system.*—But it is to the nervous system, particularly the encephalon, that we find the most interesting study. A description of Henle's taken from almost any portion of his *Nervenlehre* reads like a revelation to him who has derived his first impressions of the subject from the English school. The sections upon the medulla oblongata and the deep origins of the cranial nerves have been selected for the purpose of abridgment.<sup>3</sup> By way of illustrating the anatomy of the medulla we would refer to the topography of the floor of the fourth ventricle. This

<sup>1</sup> Anat. Mem., 1868, vol. i. (Appendix), p. 445.

<sup>2</sup> In copying the wood-cuts of Henle, the editors of Cruveilhier have evidently been not a little puzzled in their attempts to make the lettering of the electrotype agree with their own text. We have in fig. 417 (Myology) T. t. a. (*M. trans. thor. ant.* Henle) standing for "*triangular du sternum*;" and in fig. 429 (*Ibid.*) L. c. b. (*M. lev. cost. brev.*, Henle) is the occult symbol for "*sur-costaux*."

<sup>3</sup> It is quite inexplicable that the *Nervenlehre*, as far as it is completed, should have been issued without an index or table of contents.

is certainly an improvement upon our own. Especially is it noticeable that the lateral diverticulus from the floor toward the flocculus is well given. Our writers say that this cornu is placed between the cerebellum and the medulla. The defining layers for this purpose are the *velum medullæ inf.* and the *v. m. post.* The first is derived from the medulla, the latter from the cerebellum at the nodule, and both terminate upon the flocculus.

Figure 62 (Nervenlehre) gives one a different relation of the flocculus than is previously known to most students. The morphological value of the flocculus, together with the lobules, described by the same authority as the associated floccules, must be materially modified in the event of the relations above mentioned being sustained. It would appear, in a word, as though the flocculi were homologues of the lateral lobes of the cerebellum as seen in fishes.

*The origin of the cranial nerves.*—Luschka, we believe, is the first systematist who has had the courage to state in a work on human anatomy that which has long since been known by the comparative anatomist, that the olfactory and optic nerves are not of the same value as the remaining ten, but have distinct primary nuclei, corresponding to the first and second cerebral vesicles respectively. The remainder arise from the medulla. Aeby places the first and second cranial nerves under a special heading as the *N. cerebralis spurii*—and the remaining under a second which he calls the *N. cerebralis veri*. Why the nerves arising from the cerebral vesicles are not truly encephalic we cannot conceive. He denominates the first, second, and eighth pairs as the special sensory, the fifth, ninth and tenth as mixed—and the remainder as motor nerves. This arrangement at the present state of physiological knowledge is somewhat anomalous. It is from the region of the medulla that the deep origin of the cranial nerves must be sought for, and it is to Henle that the student must turn; for he will find here the most impartial consideration of the labours of others—the most elaborate wood-cut illustration of sections of nerve tissue, both of the natural size and magnified. Some of these present in a kind of harmonic succession different sections both longitudinal and transverse—of the region of the medulla from the nib of the calamus to the crura cerebri. Henle divides the medullar nerves into two groups, one containing the eighth, ninth, tenth, eleventh, and twelfth—the other, the seventh, sixth, fifth, fourth, and third pairs.

The *hypoglossal* arises from a well-defined collection of large multipolar cells, which lies to the side of the base of the central spinal canal and passes obliquely upward and forward to appear near the beginning of the floor of the fourth ventricle near the obex.<sup>1</sup>

The cranial roots of the *spinal accessory* nerve arise from the cortical gray substance behind the nucleus of the hypoglossal. It is here called by some the *accessorial nucleus*.

To the outer side of the hypoglossal nucleus lies the *ala cinerea*. This is exposed in common with the hypoglossal nucleus at the floor of the ventricle by the divergence of the posterior column. The eminence does not correspond to the real dimensions of the nerve tissue to which it owes its existence; for while the main portion of its bulk is due to the nucleus of the *pneumogastric nerve*, it is continuous posteriorly with a prolongation of the spinal accessorial nucleus, while it is narrowed anteriorly at the same time sinking from the floor of the ventricle. Immediately beneath

<sup>1</sup> This is a band described by continental authors flanking the inner border of the posterior pyramid.

the nucleus of the pneumogastric to the inner side of its concave inferior border, but not separated by any structural boundary, lies the nucleus of the *glosso-pharyngeal nerve*. The entire structure thus described is thought by Dean to be continuous with the processus reticularis of the spinal cord. It would thus appear, we venture to assert, that the ninth, tenth, and eleventh pairs of nerves of Sömmerring are distinguished from the eighth of Willis less happily than the seventh and eighth from the seventh of that author.

That the *auditory* is worthy of a separate position from the facial would appear from the following: The *nucleus of the auditory nerve* (superior acoustic nucleus) lies immediately beneath the transverse lines. An important accession of fibres joins the main root from a second *nucleus (inferior acoustic nucleus)* situated beneath the origin of the inferior cerebellar peduncle, while a third (*lateral acoustic nucleus*) is found upon the nerve as it passes through the root of the pons to its apparent origin. The superior root of the nerve just prior to its joining the root from the inferior nucleus is furnished with a ganglion which embraces the entire width of the fasciculus.

The *facial nerve* is placed within the second group of cranial nerves. Its nucleus is situated in the terete fasciculus immediately in advance of the superior root of the auditory nerve, at first occupying the entire breadth of the fasciculi then tapering toward the outer side.

The *abducens* would appear to arise from the inner border of the same fasciculus, no distinct nucleus being awarded it.

The *trifacial* arises from a nucleus composed of yellowish cells lodged in a fold between the roof and the floor of the fourth ventricle a little in advance of the facial. Luschka assigns its motor root to the *locus cœruleus*, which is made up of brownish cells.

The *patheticus*, in addition to arising from the roof of the fourth ventricle, has its more important connection with a nucleus (so called "*nucleus trochlearis*") which is situated deep beneath and to the outer side of the passage between the third and fourth ventricles. It is continuous with the nucleus for the *oculo motor*. The nerve, indeed, has three roots, an inner transverse root, arising from the roof of the ventricle, an outer root which has a branch passing backward to the outer border of the *locus cœruleus*, and an anterior root which is continuous with the nucleus matter of the *oculo-motor* as already mentioned.

The nucleus of the *oculo-motor* is lodged within the *locus niger*, but is not identified with it.

The *cerebrum*.—Here the explanation of the *island of Reil* will delight the student. We remember hearing a distinguished anatomist remark that he was at one time almost prepared to doubt that the foramen of Sömmerring was to be found until his threatened lapse into incredulity was spared him by a timely dissection of an eye immediately after its excision for disease from the living subject. So may this lucid description of the famous island of Reil, which to most students is as mythical as the fabled Atlantis, prove opportune. We would refer particularly to p. 151, and figs. 93-95. It must be remembered that this cluster is the key to the plan of arrangement of the convolutions of the anterior and superior portions of the cerebrum. Also, that immediately within it lies the *lenticular nucleus* and the *claustrum*, the striated body: Holden has happily called the convolution of the island of Reil the lobe of this body.

The *hippocampus* is also tersely described; its relations to the great

inferior sulcus, and its bearings to the convolutions of the posterior lobe of the cerebrum, are clearly indicated.

The distribution of the nerves will now take our attention.

The volume of Henle, containing the account of these nerves, has not yet appeared. It is in Cruveilhier, on the whole, that we find the best account of the nerves. The beautiful illustrations of Hirschfeld have been very commonly employed in gracing the pages of both French and English books.

*The hypoglossal nerve.*—The recurrent branches of Luschka are not mentioned by other writers excepting Hyrtl. These are distributed to the diploe of the occipital bone and to the walls of the internal jugular vein. Hyrtl believes these branches to take their origin from the pneumogastric. They are new, however, even to the anatomy of this nerve, and are deserving of notice. The spinal origin of the *descendens noni* branch as announced by Volkman and demonstrated by Luschka is generally conceded to be correct. Yet Cruveilhier makes no allusion to it. Sappey implies the spinal origin by anastomosis.

*The glosso-pharyngeal nerve.*—Cruveilhier and Sappey, who refer to it as being mentioned by Willis, to be revived by Comparetti, alone place importance upon an occasional plexiform arrangement of fibres derived from branches of the facial and glosso-pharyngeal nerves, above the concavity of the latter. Filaments from this plexus may go to the side of the tongue in lieu of the usual branches of the glosso-pharyngeal nerve. Hirschfeld figures this arrangement as the average plan. In the many copies of this plan nothing is said about the facial branches.

The *facial nerve*, as defined by the English and German writers, is without the lingual branch described originally, we believe, by Hirschfeld. In the late volume on the *Physiology of the Nervous System*, by Austin Flint, Jr., this branch is given.

The analogy between a spinal and a cranial nerve is well sustained in one instance only, viz., the fifth. But anatomists would do well to include in the text-books the suggestive identification of Bischoff that the intermediary nerve of the facial (nerve of Wrisberg) is the sensory branch of the facial, as well as the observations occasionally made that the hypoglossal in man has a ganglionic root. The reader has seen that the acoustic nerve, according to Henle, possesses a well-defined ganglion.

The *nerves of the extremities* are best described in Cruveilhier, not only with respect to the distribution of the branches, but also to the method of dividing a plexus, and to the grouping of branches themselves. The student cannot fail to appreciate the division of branches of a nerve into collateral and terminal; the naming, as far as possible, of each muscular and cutaneous branch separately, and the fixing of a uniform basis of description for each nerve. The most marked contrast between styles in this regard is seen between the German and English accounts of the musculo-spiral nerve, and of the anterior crural. It is noticeable that all the French authors say of the latter nerve that its cutaneous branches, answering to our *middle* and *cutaneous branches*, are called the "perforating," since they pass through the sartorius muscle (middle) and deep fascia (internal), while not only are these terms passed over by other writers, but the fact upon which they are based, viz., the perforation of the sartorius, is rarely mentioned in a prominent manner, and is oftener omitted. The origin of the *long saphenous nerve* is given by the English writers as arising from the superficial division of the trunk; the French,

when employing the divisions of superficial and deep set, universally place it among branches of the latter.

Our space will not permit an examination of the organs of sense, the vessels, or of the visceral cavities.

We have thus glanced at the labours of distinguished authors discriminatingly, we hope, rather than critically, with no carping spirit, but with deep reverence. We must acknowledge after such a survey that with the single exception of the rather abstruse and in other respects unsatisfactory work of Aeby, no elementary work on anatomy is favourable to obtain either a philosophical conception of the structure of man, nor a general idea of the intricacies of its detail. In seeking for the causes of this, we have concluded that it arises from the simple fact that while the human anatomist has pursued his studies with ardor, he has had to too great a degree no other motive for research than to learn the special conformation of the parts before him, so that the greater portion of his work, both monographic and systematic, has resulted in little less than a system of dissections. The text-book is too often a bundle of gleanings from the underlying record of special work, rather than a compendium of it.

Even with works designed to be something better than mere dissecting-room guides, the central idea appears to be to bring the observations of the anatomist in relation to the demands of practice rather than to the detection of truths not so subservient. This must of course depend upon the conceptions of "practice" entertained by authors, and we find almost always such conceptions are relevant to parts concerned in the larger operations of surgery—herniotomy, lithotomy, ligation, amputation, etc. Certainly, the demand of "practice" may be differently interpreted, and should mean much more. The best anatomy is that which touches at the highest point the scale of progress both in the practice of medicine and that of surgery. The practitioner's "applied anatomy" should not be, as of necessity it often is, a college reminiscence of a topography made interesting from the standpoint of capital operations, but a knowledge that he may carry with him in the performance of his daily duties. Judged by this standard, the latter anatomies have not fulfilled our expectations. The observant physician with a leaning to anatomical methods, who pursues his studies at the bedside, may often complement the scholastic anatomy of the lecture-room, and indeed may, in some instances, materially modify its conclusions. Sir A. Cooper in his studies of the deformities attending dislocations and fractures, contributed to our knowledge of the action of muscles. Duchenne,<sup>1</sup> by the aid of contractions induced by electrical currents upon the living body, has yet further improved upon our ideas of muscular action or revived forgotten opinions of the older writers. Hilton<sup>2</sup> in analyzing the sources and location of pain has developed laws in the distribution of nerves which no purist in systematic anatomy could in all probability have discovered. This list might easily be extended. While it is true that "la science pure précède toujours la science appliquée," is it not evident that facts such as these should make up in some measure the objects of teaching?

H. A.

<sup>1</sup> *Physiologie du Mouvements*, 1867.

<sup>2</sup> On the Influence of Mech. and Phys. Rest, and the Diagnostic Value of Pain. London, 1863, 167. We find in a tabulation of Birkett in his translation of Von Behr (*supra*) p. 393, a hint leading to the conclusions arrived at by Hilton, that "the sensitive branches of a mixed nerve run to the part of the skin, which is moved by the muscles receiving motor filaments from the same trunk; so that the action of the muscle being known, we can, according to the law, even *à priori*, define the distribution of the sensory nerves to the skin."

## ANALYTICAL AND BIBLIOGRAPHICAL NOTICES.

ART. XXII.—*Advance Sheets of the Tables of Mortality: being a portion of the forthcoming Volume on the Vital Statistics of the United States, Ninth Census, 1870.* 4to. pp. 425.

BETWEEN the leaves of this volume we find a circular from the Census office, stating that in the completed work will be included additional matter, and fuller details on certain points than are given in these advance sheets. The finished collection of vital statistics will embrace, together with what is now before us, explanatory remarks; tables of the blind, the deaf and dumb, the insane, the idiotic; birth tables; tables of age and sex of the living population; and comparative and percentage tables.

The present issue, fragmentary though it be, is sufficiently formidable of aspect. It contains 425 pages of large paper, pretty closely filled with finely printed tables, which appear to have been carefully revised. To disarm possible criticism the superintendent admits that the returns obtained by the census officers do not exhibit the "entire body of deaths occurring during the census year." "Whatever value," he adds, "the following tables possess is derived from the fact that they distribute nearly half a million deaths according to disease, age, sex, nativity, race, colour, and occupation, and month of death. The bearings of this subject will be fully discussed in the final publication."

In Table I. we have deaths, by States and Territories, with distinction of sex: 1870-1850. Here is given for the United States and for each component part, at the three epochs of 1850, 1860, and 1870, the population, the deaths, male and female (during the year, not decade), and the percentage of deaths to population.

There are two obvious ways of looking at this table. First, we may compare the nation or a State at one epoch with itself at another epoch. Second, we may, at a given epoch, compare one State with another, or with the country at large.

Comparing the three census years, 1850, 1860, and 1870, we find assigned to them respectively mortalities of 1.39, 1.25, and 1.28 per cent. of the population. Whether the considerable difference between the mortality of 1850 and the later periods is apparent only or real, we cannot judge. In some of the particular States or Territories we notice differences at the different times, which are slight, and presumptively due to local epidemics, severe winters, exceptionally hot summers, or to some other accidental cause. In other instances we perceive a regularly progressive decrease in the percentage; and this may be conjectured to be due to diminution of miasmatic disease, through extended clearing and improved drainage of new lands, or to some other of the many improving influences brought to bear, by an advancing culture and civilization, upon the public health. In a third class of cases, a low and increasing mortality is not truly indicative of diminished salubrity, but merely of the facts, that when society is very new, shifting and chaotic, as on our western

border, the death reports are very incomplete, and that, as in time the social order takes form and consistency, the returns become more correct and consequently larger.

In a fourth group of instances, in which we notice a sudden falling off of the death-rate, we fear the diminished figures may be due not so much to improved hygiene as to that demoralization in all branches of the public service which is liable to appear in a sullen and disappointed community.

As a few illustrations of a tolerably uniform mortality we may cite the following States, giving their percentages in the order of time, *i. e.*, 1850, 1860, and 1870: Maine, 1.30, 1.21, 1.23; Vermont, 1, 1.06, 1.07; New Hampshire, 1.33, 1.37, 1.35; Wisconsin, .95, .92, .94; Georgia, 1.10, 1.21, 1.15.

As possible illustrations of a real sanitary gain we may adduce: Rhode Island, 1.52, 1.42, 1.26; Ohio, 1.46, 1.06, 1.11; Michigan, 1.14, .99, .94; Indiana, 1.29, 1.14, 1.05; Iowa, 1.06, 1.08, .81. Few will doubt that in the following cases the apparent increase of mortality is owing to fuller returns obtained at the later periods: Oregon, .35, .57, .69; Dakota (1850 no returns), .08, .71; Minnesota, .48, .64, .80. A less marked and more regular increase in some of the older States may probably proceed from the same cause. Lastly, we may conceive the apparent diminution of death-rate in the following States to be due wholly or partly to that lack of zeal and fidelity on the part of officials, and that lack of cheerful co-operation on the part of the people, which have been so variously demonstrated in some of the Southern States: Mississippi, 1.44, 1.54, 1.11; North Carolina, 1.17, 1.27, .98; South Carolina, 1.20, 1.39, 1.05; Texas, 1.44, 1.55, 1.37; Kentucky, 1.53, 1.42, 1.09; Arkansas, 1.44, 2.03, 1.26.

Of course the different conditions and influences which we have noted, as capable of affecting and likely to affect the reported death-rate, may act in succession or even at once, upon the same State, corroborating or counter-acting each other. Some indications of this may be perceived in the cases cited, and many more in those which we have not adduced.

The second method of viewing the table is the comparing of different States at the same period. Here we are liable to be seriously misled by the figures, unless we bear in mind the circumstances just alluded to as affecting their correctness. While not doubting that Idaho possesses a most salubrious climate, we do not believe that one-third of one per cent.—0.33 per cent.—fairly represents its mortality. Nevertheless, on noting the returns of States and Territories somewhat older and with well-established society, we cannot doubt the comparatively greater salubrity of the great northwest over the other portions of the nation. Especially do we thus believe when we find the returns not increased but diminished since 1860. Colorado, 0.94; Dakota, 0.71; Montana, 0.90; Wyoming, 0.81; all these may not be deemed conclusive, because, like Idaho, they are young and, perhaps, still somewhat chaotic communities; and have no previous returns as terms of comparison. But when we see Michigan reaching, by successive reductions, 0.94; Iowa, 0.81, also less than before; Wisconsin, 0.94, having scarcely varied during three censuses; Nebraska, 0.81, after 1.32 in 1860; and when we notice Minnesota, reaching only 0.80 by a very gradual increase from 1850; with Oregon, 0.69 after a similar progress, we are disposed to admit the plausibility at least of the claim to peculiar salubrity put forth by the people of these regions. Moreover, if we are correct in the explanation previously given of the low percentage presented by some of the Southern States, the mortality of these, and consequently of the nation, should be stated higher, thus still further heightening

the relief in which the favoured regions stand. We will briefly state the percentage of mortality in some of the less favoured States, omitting some that have been mentioned as probably underrated. Louisiana, 2; Virginia, 1.24; Missouri, 1.63; Maine, 1.23; Massachusetts, 1.77; Connecticut, 1.26; New York, 1.58; Pennsylvania, 1.49; New Hampshire, 1.35; Illinois, 1.33.

In the *British Medical Journal* for August 31, 1872, we find it stated that in Europe generally the yearly death-rate is one in forty-three, or 2.32 per cent.; while in England it is one in forty-six, or 2.17; and in France one in thirty-two, or 3.12. The grounds for these statements are not given; the character of the *Journal*, however, would seem to warrant their authenticity. How much of the enormous discrepancy between our country and Europe is real, and to be accounted for by the many influences, physical and moral, that affect the duration of human life, and how much of it is due to imperfection in our statistics, forms a very curious and important question. Whatever may be the fact with regard to some of our States, we feel reasonably certain that in Massachusetts, and probably some others of our older, smaller, and more enlightened States, the returns obtained by the census officers are very nearly correct. Even supposing the Massachusetts percentage of 1.77 to be amended to 2, we should find a margin in her favour as compared to Europe. Two per cent., however, is an excessive estimate. The municipal mortality reports of Providence, R. I., have been made with the greatest possible care, for years past, by medical men, appointed because of known fitness for the work. The city has a very large foreign population employed in its factories. It had no water supply, except from wells subject to sewage filtration. Yet its mortality has been considerably less than that of England, as above quoted.

Of course it is not to be forgotten that some local epidemics may have swelled the percentage of certain places and periods, causing an apparent increase, or preventing a decrease which might otherwise have been expected.

Out of the whole 492,263, dying in 1870, 260,673 were males and 231,590 females. Not having at hand the population divided according to sex, we cannot say how closely the deaths correspond to numbers living of the two sexes. At previous censuses, however, the male population has exceeded the female in a somewhat smaller ratio. The comparative, and even absolute, excess of female deaths in some few of the oldest States, corresponds with the known fact that from various causes the male population has for years been falling towards, and even beyond, equality with the female.

Table II. gives for the nation, and each part thereof, the ages of the recorded deaths under each sex. A column is assigned to each year of age up to five, after which the periods are five years. Here we learn that two-fifths of our dead are children under five years of age. More than half of these—one-fifth to one-quarter of all dying—are infants under one year. Passing to the other extreme, about one decedent in twelve had passed threescore years and ten. We cannot detect any influence connected with sex as affecting mortality in infancy. At the period of puberty there begins to be a very decided preponderance of females over males in the death-lists. The absolute returns, in the column 15 to 20, stand, males 9521, females 10,741; at the next lustre, 12,539 and 13,449; from 25 to 30, 10,736 and 11,786; from 30 to 35, males 9456, females 10,072. In the next lustre a small absolute preponderance appears in the opposite direction, which is greatly increased in the following period. As illustrating the movement of the mortality, we may observe that on the male side the columns respectively headed 40 to 45, 45 to 50, 50 to 55, contain figures equal almost to units; while, on the female side, the two latter

columns contain sums about 1700 smaller than the first. From 55 to 60 nearly one-third less women die than men. In the next lustre the disproportion slightly lessens, while the absolute numbers on both sides increase some 1200 to 1400. The 65 to 70 column shows slightly diminished numbers, though still higher than 55 to 60. Passing to the next column we see a decrease of 300 men and an increase of 450 women. In the two periods next following we find at last the proportionate equality between the sexes again restored. In the deaths over 85 we find women considerably in excess.

To illustrate, if not account for, the curious variations above noted, we may state the matter thus: In infancy and childhood the sexes are on an equal footing. At puberty woman becomes peculiarly prone to grave disease. Her increased mortality, possibly because of first child-bearing and the novel trials and dangers of married life, continues till she is 35 or 40, though greatest between 20 and 25. The considerable fall at the 40 to 45 period may mark the recovery or survival of the constitution from the first shock of maternity. Indeed, in both sexes this period is perhaps not far from the natural climax of health and vigour. A fall of 20 per cent. marks the next lustre, while the rate is little changed from 50 to 55. The next period shows another fall of 20 per cent., indicating the continuance of health in a large proportion of the women who escaped the dangers of child-bearing. A large increase marks the 60 to 65 column; the diseases that so often follow upon the change of life are at work. The decrease at 65 to 70, followed by an equal increase at 70 to 75, we cannot explain. From this epoch the numbers steadily decrease.

In like manner we may notice the signification of the varying mortality in the different lustres of the sterner sex. Puberty is for man a less fatal epoch than for his sister. Nevertheless his mortality rises, from the 10 to 15 to the 15 to 20 period, about 15 per cent. During the next five years occurs a rise of 30 per cent. The seeds of hereditary disease, quickened by puberty, have produced their fruits. Through the two succeeding periods is a gradual fall, followed at 35 to 40 by a rise of 8 per cent. The 40 to 45 column shows the figures just about as before the rise. This mortality, remaining unchanged for ten years after, may be regarded as representing the strength of fully developed and unimpaired manhood. 55 to 60 and 60 to 65 witness the same fall followed by a rise that puzzled us in the other sex. After 65 the decrease is steady to the end, without the rise at 70 to 75 noticed in the other case.

It may be asked whether these totals, at different ages, with their curious progressions and exceptions, are borne out by the different items of which they profess to be composed. On carefully examining several States we find a close correspondence with the totals; and adding a few specimen columns find them correct.

Table III. in form resembles II.; but divides the mortality among the months of the year, instead of among the ages. A great difference is found to exist between the mortality belonging to the different months. This appears to be about the same in the two sexes. January shows 40,633 deaths. February, brief as it is, exhibits a slight increase. In March we have 49,712, being the highest number. April shows a diminution greater than is warranted by its shortness merely, while May rises to within 1200 of March. June shows an immense falling off, its figures being 33,114. In July the mortality suddenly leaps to 41,273. August raises the figures to 46,224. In September we have 42,001; October 36,651; November 32,404, and December 34,825. Thus we have, as it were, two sickly and two healthy points in the year—March and July or August, and June and November. Of course, States representing the

extremities of climate differ considerably from each other and from the average. Where malarious disease is very rife a high mortality continues far into the fall. May takes the place of March, too, in many Southern States, as the culminating point of the spring mortality. In a number of the Northern States the summer or fall mortality reaches a higher point than that of March. In Massachusetts and in Illinois, August and September are the most fatal months of the year.

Table IV. shows the race and nationality of the 492,263 persons dying in 1870. To 356,771 whites born in this country are to be added 67,461 coloured; and 65,963 decedents born in foreign lands. About 2000 of Indians, children of Chinese parents, and "unknown," make up the grand total. Of foreign birth there were, from Ireland, 27,053; Germany 18,626; and Great Britain 8922.

Table V., covering nearly 200 pages, exhibits, for the nation and for each of its divisions, the mortality as to age and sex, as in Table II., together with the diseases causing death.

It may be not unprofitable to present the figures representing deaths by certain prominent maladies. If preference is shown to zymotic diseases it is because there is less liability to error in the reports. Smallpox, 4507; measles, 9237; scarlet fever, 20,320; of which some 13,500 were under five years old, and 33 over 60 years. The *proportionate* mortality, in the two diseases last named, is a trifle greater among females. In diphtheria, 6303, males, 3078, females, 3225, the disparity is more marked. Hooping-cough, 9008, has 3987 males to 5021 females. Enteric fever, 22,187, being divided between the sexes in almost exact proportion to the total deaths of each. Passing to other forms of disease we find deaths by rheumatism number 2912, of which 1670 were males. Gout is credited with but 43 in all. Cancer, uterine, 510 (3 under five years of age); mammary, 630 (2 under five); other localities, 5084 (203 under five), of which 2815 were females. Consumption presents the appalling record of 69,896 deaths, of which 35,925 were females. Diabetes, males, 616; females, 221. "Dropsy," 7836. Encephalitis, males, 7579; females, 6122. Meningitis, 1843 and 1491. Apoplexy, 2982 and 2244. Hydrocephalus, 2302 and 1739, nine-tenths nearly being under five. Nearly two-thirds of the number dying from the inflammations of brain and membranes are also under five. Paralysis, 7501; males, 3842. Tetanus, 1626; males, 1052. Epilepsy, 1414. Convulsions, 12,751; males, 6989. Under this last heading we find 11,321 under five. The remaining 1430 (a thousand over ten years) are distributed pretty evenly through all the lustres up to extreme old age; on the other hand, under epilepsy are given 366 under five years; if a distinction is to be maintained, it seems probable that these numbers should be transferred, each to the other heading.

Of the "circulatory system" group, with its total of 17,034, 13,794 are in the unsatisfactory subdivision of "other diseases of this group." Nothing could better show the difficulties encountered than this one item.

Pneumonia is charged with over 40,000 deaths, of which 22,358 are males, and 17,654 females. Bronchitis, 4049; one-third being infants under one year. Croup, males, 5802; females, 4890.

Dysentery proved fatal to 7912 persons, 5005 under five years old. Diarrhoea, 14,195, 9456 under five. Cholera infantum, 20,255; under one year, 13,375; between one and two, 4924; between two and three, 1188.

Of the 4400 women dying in childbirth, two were over 65 years of age, and two more over 60. We should be thankful, were we able, to believe that 188

comes anywhere near the truth in representing the deaths from abortion. Still-born infants number, males, 5282; females, 3778.

Burns and scalds are accountable for the death of 1962 females and 1429 men. It would be interesting to know how many of these were caused by kerosene. Lightning, 202. Drowning, males, 3514; females, 561. Homicide, men, 1907; women, 150. Suicide among men is chiefly by hanging, 304, against gunshot, 237, and other forms, 519. With women poison occupies the first place, and hanging second—75 and 66: other forms, 144. Execution was the fate of no woman in the whole land during 1870, while it befell 31 men.

The total of violent, accidental, and suicidal deaths is 17,517 males and 5223 females.

We have neither space nor inclination to continue this sort of examination through each State and Territory of the forty-four embraced in this table.

The first glance, however, over the different States reveals a remarkable diversity as to the prevalence of measles and scarlatina.

Alabama, population 996,992, presents a mortality, by measles, of 403, and scarlet fever only 13; Arkansas, 484,471, measles, 204, scarlet fever, 16. Georgia, 1,184,109, measles, 270, scarlet fever, 12; Kentucky, 1,321,011, measles, 249, scarlet fever, 80; Tennessee, 1,258,520, measles, 335, scarlet fever, 29; Louisiana, 726,915, measles, 375, scarlet fever, 68; Mississippi, North and South Carolina, Virginia and Texas, exhibit a similar record. Now we will name another list of States in which this proportion is reversed or nearly so. Connecticut, population 537,454, measles, 30, scarlet fever, 286; Illinois, 2,539,891, measles, 702, scarlet fever, 2162; Maine, 626,915, measles, 66, scarlet fever, 422; Massachusetts, 1,457,351, measles, 291, scarlet fever, 911; Minnesota, 439,706, measles, 97, scarlet fever, 278; New Jersey, 906,096, measles, 166, scarlet fever, 781; New York, 4,382,759, measles, 1073, scarlet fever, 3403; Pennsylvania, 3,521,791, measles, 554, scarlet fever, 5645; Wisconsin, 1,054,670, measles, 152, scarlet fever, 1016; California, 560,247, measles, 39, scarlet fever, 226. There may be brought together also a group of States wherein the two diseases are more nearly equal, as Delaware, District of Columbia, Indiana, Maryland, Michigan, in which scarlatina leads, not exceeding two to one; and the great States of Missouri, Ohio, and Iowa, in which the figures are still more nearly equal.

Pneumonia, as here reported, seems to be more prevalent in the Southern than in the Northern States.

Cholera infantum is found credited with a large mortality in all States which contain great cities. Apart from this circumstance the disease does not seem to be much influenced by climate.

Florida, if we may trust the aspect of its mortality tables, should be an especially salubrious climate for children. With a population of 187,748, the deaths are, by measles, only 23; scarlatina, 10; diphtheria, 8; hooping-cough, 7; croup, 49.

The excessive mortality attributed to pneumonia in some States is often accompanied by a suspiciously low death-rate from consumption. Without stating in detail the results of an examination of the State reports with respect to these diseases, we are disposed to venture a conjecture that the rapid inflammatory form of phthisis may be especially prevalent in those States. Or possibly severe congestion of the lungs may often be the fatal termination of malarial disease. Both these modes of death might be attributed to pneumonia. The Northern States generally exhibit consumption and pneumonia as mortal in the ratio of two to one or five to two; while the extreme Southern and South-

western States reverse the proportion. Possibly, however, a portion of the difference may be due to a real diminution of phthisis as we go south, rather than to increased pneumonia or erroneous diagnosis.

Curious and suggestive as some of the figures we have presented are, even in their gross shape, the same statistics will become immensely more available when, in subsequent publications, they shall be reduced to percentages upon the total deaths, the total population, and the population of certain ages. We shall then be possessed of materials for the most profound research into the laws of disease. Especially may we expect to gain much additional knowledge concerning the conditions affecting the various zymotic diseases.

Table VI. is like its predecessor, save that the deaths by all the diseases are divided among the twelve months instead of among the different ages. We can barely glance at that portion which gives the figures for the entire country. Smallpox, out of a mortality of 4507, shows 3287 occurring in the first five, and the last month. Scarlatina has its highest mortality in March, 2726, and lowest in September, 927; the first four months of the year furnishing one-half the deaths. Measles, while having its actual maximum in March, is little less during the next two months, and quite gradually reaches its minimum in November. Diphtheria, though more evenly distributed than either of the two maladies just named, yet exhibits a marked excess of deaths in the autumn months with December and January. Enteric fever, with a decided minimum in June, 1152, and a maximum in September, 2767, is yet largely fatal in every month. Hooping-cough has its highest mortality in March, April, May, and August, reaching nine or ten hundred, and its lowest in November, less than five hundred.

Pneumonia recedes from a maximum of 6393 in March, to 1356 in July. This very rapid tumble is followed by a regular rise, which slow at first becomes much more rapid during the winter.

Apoplexy shows a marked excess in March, April, and May.

Dysentery has more than half its 8000 deaths in August, September, and July, naming these in order of mortality. Cholera Infantum, beginning the year with 502 victims in January, increases but slowly through the spring, until May presents a decided increase, reaching 1203; then follow June, 1954, July, 4354; August, 5187; September, 2968; October, 1331; November, 504; December, 478. We hardly need to remark that many cases are probably here tabulated which would be excluded by a strictly accurate diagnosis.

Table VII. exhibits the same deaths by the same classified diseases, but divided in this case according to race and nativity of the decedents. Like the others, it gives the figures first for the United States and then for each State.

In the light of this table we will recur to the remarkable relations, which we have already exhibited, between measles and scarlatina in different States. While in the entire country the mortality by the latter is double the former, yet in certain States the ratio is inverted and often vastly increased, reaching in the Gulf States and Arkansas ten, twenty, even thirty to one. Passing only from Arkansas to Missouri, the relations change from measles 204, and scarlatina 16, to measles 869, and scarlatina 1049. The difference is not due to position as seaboard or inland. Latitude may have much to do with it; but latitude is not everything. One fact we are inclined to think has a causal relation.—wherever there are great cities scarlatina is prevalent. Where these do not exist we have generally a large excess of measles. But this table gives us a new and most important light. The total deaths of the coloured to the white

race born in the United States, are as one to five.<sup>1</sup> The deaths by measles are as one to three and a quarter, coloured to white : those by scarlatina, one to sixty-six ! In other words, taking even numbers of decedents of the two races, twenty black shall die of measles to thirteen whites ; and five blacks to sixty-six whites of scarlatina. In those Southern States wherein we have found measles so predominant, we find by carefully examining this race-table that in proportion to coloured and white population, the deaths by measles are twice as numerous in the blacks. In some of the late slave States more than one-half the population is coloured. The striking difference which we have just exhibited between Arkansas and Missouri is largely due to the fact that the population of the former is one-quarter, and of the latter one-fourteenth, coloured. Add to this consideration a great city, in the latter, and the facts are accounted for. Apart from the predominance of measles, there remains an absolute smallness in the reported deaths by scarlatina in some States, to be explained by other conditions than those of race. The absence of great cities does not quite suffice ; we must also suppose that scarlatina is not at home in a southern climate.

Intermittent fever appears to be fully as deadly, and remittent considerably more so, to the coloured man than to the white native.

From fatal diphtheria the coloured race appears to enjoy partial exemption, showing a proportionate mortality less than half as large as the white. Erysipelas seems to be only one-fourth as mortal among the blacks. Coloured mortality from consumption is no greater, if as great as the white. By the diseases of the "nervous" group, the coloured race has a less mortality in the ratio of five to seven. About the same may be said concerning the "circulatory" group. In the "respiratory" group (which excludes consumption), we find about an equal disparity in the other direction.

Cholera infantum is only about half as fatal to the coloured race as to the white. This disparity, however, may be wholly due to the smaller proportion of the former living in cities.

We have never heard that coloured people were peculiarly afflicted with "worms." Yet their mortality from that cause appears to be five times as great as that of white folks.

It is rather curious to note that by burns and scalds the blacks die in more than double their proper proportion ; while by suffocation six die to one white. Is this due to coal-gas, and the desire of this race to keep warm ? By homicide the black man suffers twice his share of mortality. His exemption from suicide is singularly complete. Out of the whole 850 suicides of persons born in America, only 18 were coloured. Decedents of foreign birth, nearly equal in numbers, furnish almost five hundred self-murders.

Much matter of interest may be found by comparing the fatal diseases of the foreign-born with those of natives ; but this we must omit.

Table VIII. classifies the decedents by occupation, giving not the particular disease, but the group to which the cause of death belongs. This possesses no interest till we know the relative number living in each pursuit.

Table IX. is a *résumé*, giving the age of death of all white, coloured, Chinese, and Indian decedents, dying in 1870.

We have now reached the end of our very hasty, very imperfect, very long,

<sup>1</sup> For several reasons not necessary to be here specified, we have in this and the following pages compared the coloured people not with the entire white population, but with those native-born. The total deaths of foreign-born population are a little less than those of the coloured people.

and we fear very tiresome glance over these important statistics. The range of investigation pursued by the census office seems to grow wider with each decade. We believe too there is some improvement in the information returned to the Bureau. There certainly is in its tabulation and publication. Some of the work printed in former years has been disgracefully and absurdly incorrect. We noticed only one palpable error in this book. On page 188 the lines belonging to smallpox, measles, and scarlet fever, have got interchanged.

With all the zeal, skill, fidelity, and industry which we believe now to exist in the Census Bureau, the results attained can never be entirely what they should be until an utterly different system shall be adopted in the original collection of facts. Regular, systematic registration, must replace the Paul Pry-ing of the politically appointed official.

B. L. R.

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ART. XXIII.—*Hysterology: A Treatise, descriptive and clinical, on the Diseases and the Displacements of the Uterus.* By EDWIN NESBIT CHAPMAN, M.A., M.D., late Professor of Obstetrics, Diseases of Women and Children, and Clinical Midwifery in the Long Island College Hospital. 8vo. pp. xiv., 504. New York: William Wood & Co., 1872.

IN reference to the title chosen, the author remarks in his Preface: “I have ventured to coin a new word as a more distinctive title of a monograph on uterine disease than *Gynaecology*, that, embracing all the diseases peculiar to the female, is too broad in its signification.” And he states:—

“ My purpose, a humble one, is simply the delineation, from personal observation, of the histories, symptoms, pathology, and treatment of the special disorders of the non-gravid uterus.” (p. 1.)

Referring to the *benign* affections of the uterus, the author remarks:—

“ Observing the marked, though temporary, relief attendant upon a single scarification of the labia uteri, I began to suspect that the changes in the cervix, discovered by the use of the speculum, were secondary to some pre-existing condition, and that a permanent cure could not be attained until this should be removed. Disabusing my mind, as far as possible, of the opinions I had acquired of others, or formed of myself, and resolving to begin *de novo*, as though nothing were known on the subject, I attempted by the empirical trial of various plans of procedure, to discover the one the best suited to each special condition. Gradually and imperceptibly, after an unremitting and pains-taking application extending over many months, a new light broke in upon the obscurity enveloping these diseases; doubt and uncertainty gave place to confidence and precision; discouragement and distrust to expectation and reliance; and now, having given two to three hours daily, for more than seven years, to these practical investigations, I am emboldened to assert most positively that no class of disorders is more readily diagnosed, none more certainly removed, and none is more free from liability to a relapse, than the one of which it is my purpose to treat in the following pages.” (p. 9.)

We have preferred to quote the author’s own language, to show the position of independence which he assumes throughout his work. He has thrown down the gauntlet to many writers and observers of large experience, and will no doubt have to defend his position in future.

In the chapter on “Symptoms and Examinations,” after commending the left lateral decubitus, or English method, as more delicate and giving greater freedom to the operator than the French, or dorsal, he recommends the erect

facing posture of the latter, which is even more indelicate, and certainly not in any way more convenient, than the examination made from behind the patient. In making such explorations in cases of expected prolapsus, we have been in the habit of placing the woman in a stooping position before a bureau, with her hands resting upon it, her extremities widely separated, and introducing the index-finger as in the left lateral decubitus, kneeling behind the patient, but never "facing" her.

Dr. Chapman is evidently no friend to the stem-pessary, of which he remarks:—

"Appliances like these might merit approval, and answer the indications, were the internal genitalia an inanimate mechanism, the various parts of which could without hazard or detriment be probed, pierced, propped up, and fixed in place by steel rods." (p. 30.)

Of the use of the sound, he says: "Rarely in benign disease, is it necessary to pass the sound through the inner os, or explore with it the proper uterine cavity."

He does not give a great deal of credit to his medical brethren, in the following language, upon what they are to find with the speculum:—

"If the mind of the physician be preoccupied with the doctrines of Bennet, he will invariably discover the unmistakable evidences of chronic inflammation, ulceration, induration, and hypertrophy, structural changes requiring the most destructive agents for their removal; if by those of Robert Lee, he will, by the closest scrutiny, discover nothing but a slight abrasion of the epithelium, or a mild catarrh of the mucous membrane, conditions as trivial in import and common in occurrence as like states of the Schneiderian membrane, and as easily rectified by general remedies." (p. 37.)

He recommends the physician to "take the true standpoint, and employ his eyes as in studying other objects." Instead of the heading, "True Standpoint for the Physician," he should have had it "Eyes and no Eyes, or the Art of Seeing."

In the chapter on Pathology and *Ætiology*, the author opposes the ovarian theory of Tilt; the teachings of Bennet, that the cervix is liable to inflammation, induration, hypertrophy, and ulceration; the doctrine of Prof. Charles D. Meigs, "that prolapse of the uterus is the fruitful parent of the numerous progeny of ills to which the female is subjected, and exists in seventy-five per cent. at least of all uterine cases;" and the opinions of Scanzoni, that uterine disease consists in an inflammatory affection, producing hypertrophy of the uterus proper, or its lining membrane, a secretion of mucus and pus, erosion of the mucous membrane of the os, advancing to ulceration, destruction of tissue, and production of fungous granulations; but commends those of Tyler Smith, whose observations he characterizes as "the most invaluable contribution ever made to *Hysterology*."

The author advances the opinion that the uterus is in a state of congestion, and not inflammation, as "proven by the puffy and elastic feel of the neck, by its slight increase in temperature, by the trivial pain caused by an examination, and by the augmented bulk of the uterus." (p. 61.) He further states in proof (p. 88), that rapid cures are effected by local loss of blood, spontaneous or artificial, etc.; and that the cervical glands secrete albumen, and never pus.

Under the head of "Congestion of the Inner Cervix," eighty-one cases are recorded, seventy of them in a very condensed form; the local treatment consisting for the most part of scarifications of the cervix, and the application of a 40 grain solution of nitrate of silver to its cavity. These were supplemented

by tonics, iron, astringent injections, etc., as the peculiarities of each case appeared to require.

Under Class II., Multiparæ, "Congestion of the Inner and Outer Cervix," we find the records of 177 cases, with various complications and accompanying peculiarities, embracing, according to the author, the majority of all the cases falling under the eye of the hysterologist. He thus describes the appearances commonly observed through the speculum:—

"The os is more open than natural, and gives exit to a free albuminous secretion, but the cervix presents various appearances. It may be either œdematosus and glistening, and have a pale rose-colour, with or without a bright arterial injection of the labia, or be distorted by the enlargement and elongation of one or both lips, and have a deep vermillion circle around, and a bluish-purple hue beyond the uterine mouth. On its surface, red points are occasionally seen, which, scattered here and there, and either distinct, or run together in a uniform blush, are the apices of papillæ; and, at times, though unfrequently, at these points minute vesicles are formed that are due to the intense underlying congestion raising the epithelium by a serous effusion. As these vesicles are herpetic in nature, their contents in this as in other localities change from a watery to a milky fluid." (p. 144.)

The local treatment employed was, as a general rule, similar to that under the former class, viz., depletion by scarification, and occasionally by leeches, and the application of the nitrate of silver, either in solution, or, in cases of marked erosion, in the solid stick.

"Congestion of the Uterus." To the morbid changes before noticed, the author adds those which mainly arise from the enlargement of the organ, and its "more extensive range of sympathetic irradiations, and a more profound implication of the ganglionic and spinal nerves as shown by the greater severity and obstinacy of all the disorders hitherto observed in uterine disease." The prominent local disturbances given are pain and tenderness above the pubes, a sensation of weight in the pelvis, with pressure upon the bladder, difficulty of retention of urine, and anteversion of the uterus, followed not unfrequently by prolapsus, even to an extensive degree.

Under this class 68 clinical cases are reported, being much less uniform in character than those belonging to the previous classifications. The following is Dr. Chapman's theory with regard to uterine hypertrophy at the period of change of life.

"The hyperæmia of the uterus" [speaking of the case of a woman of 56] "was, in this instance, due to the sudden cessation of the menses at the change of life; whereas the decline of this function ought to be gradual, so that nature may be allowed time to accommodate herself to this radical revolution in the system. The climacteric period is not unusually marked by menorrhagia, which removes by a natural effort the congestion occasioned by the insufficiency or absence of the catamenia. Should, however, relief be not thus attained, it ought to be sought by artificial appliances, since the fulness of the uterine vessels predisposes to morbid growths and malignant diseases that often take their rise at this age. (p. 214.)

We have never known a patient more free from uterine maladies during her life, than one now 78 years of age, who was perfectly regular up to a certain period, when her menses ceased, and forever, without any hemorrhagic or other change to mark the event.

Another cause for uterine congestion is given in a subdivision headed "*From non-involution.*"

"Almost invariably the cases falling under this head date from a labour or a miscarriage, and arise from a check to the normal process, that, instituted on

the discharge of the uterine contents, whatever the stage of the development, melts down and removes the newly formed tissues, which, adventitious and temporary in their purpose, have now become useless and effete. This process, termed *involution*, is retrograde and spoliative in its nature, and, when perfected, restores the womb to its normal non-pregnant state, but, when interrupted or materially interfered with, leaves it nearly as large as at the time of delivery—the venous canals being surcharged, the muscular tissue spongy, the capillary circulation sluggish, and the venous power defective." (p. 231.)

A third cause enumerated is, "mechanical obstruction," in prolapsus, and particularly procidentia uteri, when the organ becomes enlarged by pressure upon its veins, in some instances to three or four times its normal size. In this case, a replacement will often in time restore the uterus to its natural dimensions. As a means of mechanical support, Dr. Chapman gives his preference to the silver-coated globe pessary.

As in the former classes, the author treats uterine congestion by topical depletion, and the application of nitrate of silver; with the internal use of fluid ext. ergotæ, or tinct. ferri chlor.; or the local application of ferri persulph., where menorrhagia is a prominent accompaniment.

In Class V. "Congestion of Cervix and Vagina" is more minutely defined as "Congestion of the cervical canal, congested circle around the os uteri, with or without the loss of epithelium, congestion and enlargement of the neck, congestion of the erectile coat of the vagina, mucous inflammation of the vagina, and slight congestion of the corpus uteri and ovaries. Peculiarities—vaginismus, vascular tumour, vaginitis."

The uterus and vagina are so intimately connected through their nerve structure, that congestion of the former frequently leads to disease in the latter, the vaginal affection being secondary, and dependent upon the uterine: hence the plan of treatment proposed by Dr. Chapman, which is mainly depletive and addressed to the uterus. He says of one case:—

"As in this case, so in all others of a similar character, it is found that a loss of blood from the cervix depletes the vascular network of the vagina, equally with the uterine veins, and that a vaginitis, arising as a sequel of uterine congestion, is subdued by restoring the uterus to its normal condition. If, on the contrary, a vaginitis be primary, or due to inflammation of the rectum or bladder, the loss of blood from the cervix will be of little or no avail." (p. 264.)

Twenty cases of a more or less complicated character have been reported under this class, the chief reliances being local depletion, nitrate of silver, injections of borax, laxatives, chalybeates, and bitter tonics, as before. A case of cystitis with slight congestion of the cervix was treated with the same form of depletion, to "the immediate relief of the urinary disorder," saline laxatives and pills of gum turpentine being at the same time administered.

Class VI. same as Class V., with ovarian complication.

"The congestion gaining increment and force by the greater extent of structure involved, and likewise by that mutual reaction always taking place between two or more suffering organs that conspire to a common fuction, the grade of nervous excitement becomes higher, and the intensity of vascular engorgement greater than in the simpler forms of disease already investigated. This point being reached, the congestion advances still further, and attains its extreme limits by involving the ovaries and the true uterine mucous membrane equally with the uterine muscular tissue and the vaginal envelopes, and also by rendering all these organs a common centre of an excited arterial determination." (p. 287.)

"Congestion of the cervical cavity represents the minimum, and that of the uterus, vagina, ovaries, and true uterine mucous membrane, the maximum of womb-disease, each intermediate stage retaining the characteristics of the pre-

ceding, and approximating in nature to the next higher, until at last morbid action attacks every organ of the reproductive system, reaches its height, and displays itself in completeness as a totality." (p. 288.)

The author draws a distinction between the relative influences of congestion of the cervix, and body of the uterus, upon the ovaries, claiming that in the former the reaction is imperfect, comparing it with the sympathy that unites the stomach and small intestines; whilst in the latter, owing to more intimate vascular and nervous connections, the ovaries become much more decidedly and directly involved in disease. He does not believe that the pain and tenderness so often experienced in the iliac fossæ arise from congestion of the ovaries but from a supersensitive state of the uterine nerves, which is succeeded by a higher grade of neuralgia as the disease advances. True ovarian congestion may ultimately result, but its grade is much lower than when it arises suddenly, in common with the uterine, as a result of menstrual suppression from external causes.

Speaking of the touch per rectum in suspected ovaritis, Dr. Chapman remarks, that the enlarged ovaries believed to have been felt by examiners, were probably in most instances nodulated masses of lymph, resulting as a deposit from the general congestive condition which accompanies that of the ovaries.

Of uterine flexion the author writes:—

"A flexion previous to puberty will give rise to no symptoms, nor after this age, if, as is commonly the case, the menstrual flow be unimpeded; a fact explaining the slender knowledge of many members of the profession as to this variety of uterine deviation." . . . "Many, if not most cases, are congenital, originating during the period of foetal development from a defective or perverted cell-life; but others are accidental, being acquired during the menstrual reign from the involution after a labour or an abortion, or the sub-involution after the cure of a congestive enlargement of the uterus, proceeding too far in its destructive disintegration." . . . "Therefore a flexure when congenital is a malformation, but when accidental is a change of form from fatty degeneration, that, weakening the muscular walls in a circumscribed locality, causes the corpus, from want of support, to bend in that direction." (p. 307.)

Dr. Chapman regards flexures of the uterus as in themselves of very little importance, but becoming such, as the cause of menstrual obstruction, and subsequently of uterine congestion with its accompanying ills.

The clinical reports under the head of "Congestion of the Uterus, Ovaries, and Vagina," number 47. As an evidence of the complex character of some of these cases which are marked *cured*, witness the heading of Case 318, "Congestion of uterus, ovaries, and vagina; hypertrophy; hyperæsthesia; erosion; menorrhagia; dysmenorrhœa; epilepsy; intercostal neuralgia; angina pectoris; asthma; aphonia; laryngismus." (p. 334.)

The author appears to base his congestive theory, as opposed to the existence of inflammation, upon two points: the prompt effect of depletion, and the absence of the usual secondary results of inflammatory action as witnessed in other organs than those belonging to the generative system, viz., the production of pus, the destruction of tissue, and the formation of adhesions. In commenting upon the results in Cases 113 and 114 he writes:—

"This case (exiii.), like most others in this class, refutes conclusively the doctrine that womb-disease is of an inflammatory nature, or has any analogy, even the most remote, to the morbid states of other organs of the body. Beyond a doubt, a congestion of the intensity here seen, one so active and violent that it seemed to have overleaped the bounds of a simple fulness of the blood-vessels, would in any other organs than the genital, have eventuated in inflammation, and the inflammation in certain lesions; and yet it is observed that the

patient's disease yielded promptly to local depletion, a result quite inexplicable had inflammation previously existed, and produced, as it would, organic changes of structure." . . . (p. 324.) "The uterine disease presented all the well-defined symptoms that are indicative in other organs of inflammation, but still the vascular action did not extend beyond a congestion." (p. 320.)

In Case CCCXV. we have presented a woman with congestion of the uterus, ovaries, and vagina following a syphilitic infection; then the formation of an ovarian tumour; an attack of phlegmasia dolens; the full development of the tumour, to the size of the uterus at nine months; pregnancy at full term with gradual subsidence of the tumour; delivery, and the redevelopment of the tumour, with a renewal of all constitutional and local symptoms, except those immediately dependent upon the ovarian disease. In commenting upon this case, Dr. Chapman remarks:—

"Few physicians would, in the face of such profound general and local disorders, have questioned the inflammatory nature of the disease, and many, perhaps most, would at least have taken the occurrence of phlegmasia dolens as a positive proof of either hysteritis or ovaritis." He attributes the phlegmasia to probable pressure by the ovary upon the iliac vein, and says of the tumour, "That congestion, and not inflammation, was the morbid action present in the ovary, is conclusively shown by its growth, since this, a quickened assimilation, would naturally attend a more active circulation, but could not, by any known law of the economy, result from the phlogistic process." (p. 327.)

The author does not follow up this case to a final conclusion, as the patient left the country, but it would appear to have been one of ovarian dropsy, partially arrested for the time, by uterine development, with absorption of its contents under pressure; to be again developed after a normal restoration of all the other pelvic viscera, a condition not uncommon under similar circumstances. The reviewer remembers an instance where an ovarian tumour remained quiescent for 14 years after a pregnancy, and then became redeveloped to an enormous size. The question in this case would appear to rest upon whether ovarian dropsy is, or is not, the result of a true inflammatory action.

Class VII. same as Class VI., but somewhat modified, as existing in nulliparae. Upon this variety of cases the author remarks:—

"In the unfruitful female, on the contrary, there are no intermediate stages [as in the child-bearing], but a sudden and abrupt transition from mild to severe, from an insignificant hyperæmia of the cervical mucous folds, Class I., to a profound congestion of the uterus, ovaries, and vaginal coats, Class VII. In the former, womb-disease is usually simple in character and limited in extent, and after a longer or a shorter time, responds to treatment; but in the latter, it is always wide-spread and intractable, and too often sets at defiance the resources of medical art." (p. 343.)

"As the virgin uterus has never been developed by pregnancy, its body is not hypertrophied, but only slightly enlarged by a fulness of its vessels [except in rare instances]; its neck is not changed in size and shape, but retains its normal bulk and contour, and its mouth is not everted or expanded, but rather is more closed by the spastic contraction of its sphincter; and yet, strange to say, these various conditions, apparently so favourable, and often such as fail to offer the more ordinary evidences of disease, are serious if not insurmountable impediments to the success of our remedial appliances." (p. 344.)

"The simple act of hypertrophy, though considered by most hysterologists as the gravest complication, will always mitigate the pressure [on the nerves] and often banish the irritability that existed at the onset of the disorder." (p. 345.)

Dr. Chapman regards the *vaginismus*, so frequently recorded by him in cases of nulliparae, as a symptomatic evidence of vaginal congestion, and says:—

"Notwithstanding the array of authorities to the contrary, it is certain that this exalted sensibility in nulliparae is indicative of congestion of the uterus and vagina, and is a tolerably exact measure of its amount and extent. Indeed the sensibility uniformly advances *pari passu* with the congestion, and is almost a positive proof of its existence." (p. 354.)

The question in the mind of the reviewer is, what is *vaginismus*? Dr. Sims says: <sup>1</sup> "By the term *vaginismus*, I mean an excessive hyperaesthesia of the hymen and vulvar outlet, associated with such involuntary spasmodic contraction of the sphincter *vaginæ* as to prevent coition." He also remarks (*op. cit.*) that the *vaginal* surface of the hymen is not abnormally sensitive to the touch; and that the most perfect examples of the disease he had seen were uncomplicated with inflammation. This term, as originated by Dr. Sims, we conceive to be misapplied in the cases reported by Dr. Chapman, which, although affected with a spasmodic contraction of the vagina, were entirely different in other respects from those reported by the former, in which the hyperaesthesia and spasm were at the orifice of the vagina, and constituted the primary disease. There are several diseases of the larynx which are associated with spasmodic action, but there is but one entitled to be called *laryngismus stridulus*; so there may be vaginal spasm which is associated with congestion or inflammation, not properly entitled *vaginismus*.

The work of Dr. Chapman concludes with general remarks upon treatment, including the preparation of tents, formulæ used, etc. The clinical cases given amount in all to 357, of which 280 are very closely abbreviated. Of the latter class, a large proportion might, with a pecuniary advantage to the purchaser, have been left out, as more than half of them are of no practical value, the results of treatment not having been ascertained, or the patients having discontinued their visits before any material benefit could have been obtained, no less than 92 having visited the *clinique* but once, and many of these not having been thoroughly examined, or their treatment commenced; 34 having called but twice, etc. We know that there are great difficulties and annoyances to contend with in the treatment of walking cases, and have very great doubts about the propriety or safety of ever using tents in such subjects, unless we can afterwards visit them at their homes; but nothing can justify an author in making his book large at the expense of the reader, without rendering an equivalent value. The volume is neatly printed, the illustrations are generally good, although not always anatomically accurate, and the treatise contains much that is valuable, although the opinions of the writer are in many instances of questionable correctness. We believe that the text, by a greater simplicity of style, and proper curtailment, might have been reduced nearly one-half, without any detriment, but rather to the credit of the author, and to the decided advantage of the reader.

R. P. H.

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ART. XXIV.—*Practical Suggestions in Naval Hygiene.* By ALBERT LEARY  
GIHON, A.M., M.D., Surgeon United States Navy, Member of the Naval  
Medical Board. Washington: Government Printing Office, 1871.

THIS is a thoroughly practical book, well adapted to the purpose for which it was written. While unable to accept quite all the opinions and precepts it enjoins, we may fully agree with Dr. Ruschenberger, U. S. N., in the indorse-

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<sup>1</sup> *Uterine Surgery*, by Dr. J. Marion Sims, New York, 1866, page 318.

ment contained in his introductory letter, to the effect that the work is so executed as to "entitle its author to the praise and thanks of all who are interested in securing for the nation an efficient naval service." Its subjects are presented in eighteen sections or chapters. The first contains a brief summary statement of the "Province of Naval Hygiene." The next three consider the "Examination of Recruits," the "Receiving Ship," and "Navy Yards." The details given in these chapters are chiefly of immediate interest to those connected with the navy. The following passage may be appreciated by every reader:—

"The moral health of a crew is as necessary to discipline and efficiency as the normal condition of their bodies. The superiority of the modern over the old-time sailor, as an intelligent, thinking man, is evident to the unprejudiced, and the late war demonstrated that he was no less zealous, brave, and competent than his ruder predecessors, who made a naval reputation for their country. It is the province of hygiene to correct all errors and abuses whatsoever which enfeeble the body, obtund the mind, or degrade the moral nature of the sailor. The purpose of its suggestions is to diminish sick-lists, empty briggs, and banish from the berth-deck the filth, obscenity, and profanity, of the existence of which those only are ignorant who never visit it except when prepared for inspection."

It is no doubt perfectly true, as our author asserts, that dampness, dirt, foul air, and darkness are the direst enemies with which the sailor has to battle when afloat. Leagued together, they slaughter more than all the adversary's powder and shot. Sir Gilbert Blane and Prof. Guy are quoted in support of the judgment, that the success of navies depends greatly upon hygiene, which, during times of peace, may prepare them for exceptional periods of conflict. Two not unimportant points of advice may be noticed as we pass over these chapters. One is that, as before shown by Medical Inspector Wilson in his work on Naval Hygiene, it is a common defect in pumps to be too short to reach to the bottom of the well, so as to discharge all the accumulated bilge-water. Fonssagrives is cited as giving an instance of the serious prevalence of dysentery on board of a French corvette, in evident connection with this as a cause. Another matter of consequence is the avoidance of solid bulkheads in the inhabited parts of vessels. "Every partition, those separating private apartments as well as those marking the larger subdivisions of wardroom, steerage, warrant-officer's steerage, sick-bay, etc., should be latticed or gratinged above and below. This can always be done without any sacrifice of strength." By such means air will be allowed to circulate to very great advantage.

In the next section, Surgeon Gihon is quite eloquent upon "Humidity," as the greatest danger that the sailor encounters, greater than that of the mighty deep on which he floats:—

"It is not the water without his vessel that imperils his life so much as that within it—that which saturates his clothes and bedding, fills the air he breathes, and, creeping in wherever that air can enter, permeates the very tissue of the wood of which his ship is built. This is his enemy; terrible because unseen, powerful because denied, depreciated, and therefore unresisted. Fewer lives are lost by shipwreck than by the operations of this subtle agent."

Excessive and unduly frequent wetting of the decks is very properly denounced as promotive of bronchial, pulmonary, and rheumatic affections. We have observed the same mistake, with similar effects, even in the wards of a large municipal hospital; but of course it must be worse at sea. "Berth-decks and covered gun-decks do not require to be wetted oftener than once, or at most twice, a month," and then only when the weather is clear and dry.

*Ventilation* is well treated in the next following section; then, *Light, Clothing and Personal Cleanliness*. Under the head of *Food* occurs our first occasion of partial dissent from our author's conclusions. His admissions on the subject of *spirit-rations* appear to us to be only half-truths. Thus he writes:—

"The objectionable feature of the old service of grog was that it was drunk undiluted and upon an empty stomach. The moral argument that it engendered and fostered a fondness for intoxicating liquors applied only to boys and a few landsmen, most sailors, firemen, and marines having already acquired the taste and habit before entering the service. It is doubtful whether even three years of enforced total abstinence could destroy the appetite in the confirmed inebriate."

Experimental evidence has now been abundantly furnished by Dr. Parkes, Count Wollowicz, and Dr. B. W. Richardson, proving that alcohol, in a state of *health*, is a *waster* of energy, especially of the heart. In disease, under circumstances capable of pretty definite recognition, it often does excellent service toward the economy of force. Under extraordinary exertion or exposure also, it is, when given in small amounts, useful. Possibly this latter function of alcohol has been, since the observations above mentioned, rather too much depreciated. Surgeon Ghion, while not advocating the reissue of a daily ration of grog, reasonably advises that provision should be made for its proper use in emergencies; especially when, in bad weather, the rolling of the vessel prevents the lighting of the galley-fire, and the preparation of coffee and tea. These last beverages, he correctly admits, "to a large extent accomplish the same results as alcohol," and he includes also tobacco as a partial substitute for it. Prof. Parkes has, in his work on *Hygiene*, emphatically urged the abolition of the spirit-ration in the British army. When it was, by Sir Hugh Rose, reduced in India to one-half, Prof. Parkes regarded the reform as yet insufficient. As we find, in the book before us (p. 131), the statement that "drunkenness is the source of most of the disturbances on board ship," we are surprised at the above-shown comparative indifference to the need of such protection against it as may be maintained by authority. Experience in "sanitaria" for the treatment of inebriates, at Boston, Binghamton, and Media, Pa., shows that a shorter time than three years will be quite sufficient for the restoration of voluntary control over the *methomaniac's* appetite. Government should do what it can in this direction; however, it may happen that, with many men, when they reach the shore, "the land-shark and prostitute can nullify in half an hour the resolutions of years." We regard it as an important testimony to the expediency of the abolition of grog, that, as Surgeon Ghion says, when it was given out, "on board of a sloop of war having a complement of one hundred and sixty men, I have known only forty to drink their grog."

In reference to the *régime* of the navy, fault is properly found with the arrangement of the men's meals. With breakfast at 8, dinner at noon, and supper at 4, they are made to eat three times in eight hours, and to fast through the other sixteen; although during the latter time many of their most arduous duties have to be performed. Dr. Ghion very well says that no economy of fuel can excuse such an anomalous practice. An excellent section on *Potable Water* follows, and others on *Sleep, Exercise, and Climatic Influences*.

In the last of these, a rather too positive assertion occurs, it appears to us, that "acclimation is no longer regarded as a fact." We must again appeal to Prof. Parkes, as well as to Miss Florence Nightingale and other authorities, as holding that it is, at least, often a possibility, when care is taken to meet the new conditions attending a change of climate, in modes prescribed by sanitary science and experience. Admirable regulations for vessels stationed

on the west coast of Africa are quoted by our author, as issued by Secretary Preston, U. S. Navy, in 1850; and still in operation. In connection with those necessary in tropical climates, some facts of interest are mentioned concerning heat-stroke. The symptoms of this affection (not, therefore, very well called *insolation*) often occur among men "in the fire-room of steamers, on board the monitor class of armoured vessels, in small, ill-ventilated cells." Maclean reports the same as taking place on the Red Sea, in August and September, on mail steamers where over-crowding and impure air are added to excessive heat; it being observed that "most of the cases occurred while the sufferers were in the horizontal position in their ill-ventilated cabins." Boudin quotes also the case of a French man-of-war which, while at Rio de Janeiro, had a hundred cases of "insolation" out of a crew of six hundred men. "Most of these men were attacked, not when exposed to the direct heat of the sun, but at night when in the recumbent position; that is, when breathing not only a hot and suffocating, but also an impure air."

Here is a graphic account of the common unsanitary conditions which make many ships "fever nests," maintaining their own endemics of yellow fever, typhus or cholera.

"The decay of the wood of the vessel and of the chips under the ceiling, the leakage of brine from provision casks and of molasses and vinegar from the spirit-room, the drippings of oil from the machinery of steamers, the sifting of coal dust from the bunkers and of ashes from the fire-room, the influx of salt water, its admixture with fresh spilled from the tanks and the consequent death of the microscopic organisms which inhabit it, together form a putrescible mass, the malarious emanations from which pervade the vessel and occasion a general predisposition to zymotic and paroxysmal febrile affections; therefore, while so much attention is given to the avoidance of unhealthy localities, let some little be paid to the smouldering pestilential fire—the artificial marsh over which so many human beings are living in fancied security."

Testimony is adduced from the Admiralty Report of the British Navy for 1865-66, showing that, in respect to outbreaks of yellow fever on board ship, "nearly all the vessels which have been most scourged in late years were unmistakably unhealthy ships, as evidenced by their larger number of cases of general sickness, not only during the yellow fever years, but also in those which preceded or followed them." This kind of reputation, with the *L'Eclair*, was such that, to efface the remembrance of a terrible experience, her name was changed to *Rosamond*. It is well said by Surgeon Gihon, that "the system of quarantine which proposes to imprison both sick and well upon the infected vessel until the epidemic exhausts itself for lack of new victims, is a barbarous relic of popular ignorance and superstition." "Michel Levy, and Fonssagrives, in their respective works on hygiene, have protested energetically against the useless and ridiculous impositions of the system of quarantine in vogue, and the medical officers of every navy are agreed that, no matter what the disease, both sick and well should be immediately removed from the vessel, which should be thoroughly cleansed and renovated." It will be an immense gain to the commercial as well as the naval service of all countries, when these facts and teachings shall be fully and generally appreciated.

Excellent suggestions are given by Dr. Gihon under the head of *Moral Influences*.

The value of suitable reading for the men while at sea; of innocent and varied amusements, and of frequent visits to the land, the privilege being forfeited if abused; and other like themes, are well considered. But we are not quite so well assured of the validity of the reasons assigned for our author's view, that "the naval hygienist has no other alternative than to recommend frequent

liberty on shore as the only practicable means of preventing the commission of secret sexual vices." Were marriage, with the sailor, the rule, and absence from home usually short, this would certainly be an unquestionable sanitary principle; but, as we understand the remedy conceived by Dr. Gihon to be more unrestricted, we have against it, at least the very portentous evils of syphilis and gonorrhœa; while, in the very same sentence as that above quoted, it is admitted, that "when these habits [of secret vice] are established, even this liberty *will not serve to eradicate them.*"

Acquaintance with the higher needs of human nature is shown by our author in his observation of the discontent of the sailor with the announcement that "there will be no Sundays" on board the ship. "The sailor," he adds, "has a considerable religious element in his character, and, though restive under long church services, he entertains a respect for everything sacred. In most vessels of the Navy the Sabbath is scrupulously observed."

After a very good chapter upon the care and management of the "*Sick-Bay*," Surgeon Gihon finally epitomizes the instruction conveyed in his volume in a code of "*Sanitary Regulations for the Navy.*" These consist of thirty definite injunctions, embracing all needful topics; and they are followed by a shorter series of similar "*Sanitary Regulations for Transports.*" Good sense, knowledge of his subject, and fitting conciseness of expression, characterize the rules thus given. From the stand-point of general hygiene, we are not able to see how they could be at present much improved. Were the book before us made a necessary part of the studies, not only of every one of those belonging to the service for which it was written, but also of every captain, mate and steward of all merchant vessels, it is probable that the duration of life amongst sailors might be materially increased; and the number of fatally infected vessels, now the dread of our great cities, might be greatly diminished. But it will take time to effect such reforms. As Dr. Ruschenberger remarks in his introductory letter to this work, "a nail is not usually driven home by a single blow, nor is a thought communicated and made common among men of any class by a single publication. Frequent and successive blows force the nail into position. Repeated presentation of facts and ideas in various aspects has to be made, to induce the common and heedless mind to receive them."

H. H.

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ART. XXV.—*Transactions of American State Medical Societies.*

1. *Transactions of the South Carolina Medical Association. Annual Session, 1872. Held in Columbia, April 16 and 17, 1872.* 8vo. pp. 108.
2. *Communications of the Rhode Island Medical Society for the years 1865-72.* 8vo. pp. 175. Providence, 1872.
3. *Transactions of the Twenty-First Anniversary Meeting of the Illinois State Medical Society, held at Peoria, May 16, 1871.* 8vo. pp. 185. Chicago, 1872.
4. *Transactions of the Medical Society of the State of Pennsylvania, at its Twenty-third Annual Session, June, 1872.* 8vo. pp. 264.

1. THE Session of the *South Carolina Medical Association* was opened with an address by Dr. F. PEYRE PORCHER, the President, in which he delineates with great clearness "the phenomena, and results under treatment, of yellow fever, as it prevailed in Charleston during the summer of 1871, so far as it came under his personal observation."

The most interesting portion of the address, perhaps, is that devoted to a consideration of the different forms or shades of fever which prevailed at the same time, in the same situations, and in the same class of persons, as the yellow fever, which the author considers may be received as, in fact, milder—modified forms of yellow fever, inasmuch as they and the recognized type of the yellow fever usually prevail together.

It will be proper to remark, that in reference to the various grades of fever of every shade of intensity, which may prevail conjointly during an epidemic of yellow fever, Dr. P. does not pronounce them all to be cases of yellow fever, giving immunity from second attacks. He has found it impossible to decide with precision, into what category to arrange some of the cases occupying an undeniably middle ground—too severe to be classed with simple fever, and yet hardly enough so to be classed as yellow fever, conferring immunity from future attacks; and yet, Dr. P. remarks, “the physician has seen apparently milder fevers, at their outset, followed by black vomit.”

The treatment of yellow fever, as laid down by Dr. P., is based upon correct therapeutical principles. The chief points are, 1st. The absolute necessity of its early inception. 2d. The employment of a large mercurial purge, followed by a saline cathartic—thus emptying the bowels, and disgorging the liver and the glandular apparatus. 3d. Simultaneously and from the very beginning, using revulsives to the surface of the abdomen; hot stimulating baths to the lower extremities—with the assiduous and protracted application of ice-cold water to the head, hands, and arms—*as long as there is a continuance of abnormal heat.* 4th. All purgatives, all active depressing agents must now be discontinued absolutely, and give place to what is, perhaps, more efficient than any simple placebo—a mild alkaline diuretic and diaphoretic, containing morphia. The cold sponging—towels or cloths he considers preferable to sponges, for the purpose indicated—and the use of sinapisms, and hot mustard pediluvia are to be continued so long as headache, morbid heat of surface, with high thermometric range, indicate the existence or progress of combustion and destructive tissue metamorphosis—*fever*, in other words. Then, too, the recuperative powers of nature are to be trusted to, aided, if need be, by mild tonics, moderate stimulants, and nourishing diet, etc.

Dr. P. highly eulogizes cold water, externally applied, as an efficient agent in the reduction of febrile heat. This was first pointed out by Dr. James Curry, of Liverpool, early in the present century, and its power as an anti-febrile agent has been fully recognized of late years throughout nearly all the German States, in whose hospital establishments immersion in cold water baths is used with the utmost boldness in the treatment of all the zymotic fevers, and with the most beneficial effects. In the treatment of yellow fever in the United States, cold water seems to have been latterly, in great measure, overlooked. It is true, the late Dr. Wm. Currie, of Philadelphia, directed ice to the head of his yellow fever patients during the height of the febrile stage, and as a common drink, iced lemonade; nevertheless credit is due to Dr. PORCHER for having invited the attention of the physicians of the present day to the importance of the hydro-therapeutic plan of treatment in yellow fever, and its power of changing the entire character of the disease and rendering milder its entire course.

The next paper is an account, by Dr. R. W. GIBBES, of a wound in left hypochondrium, made with a pocket-knife, one and a half to two inches long, two and a half inches above the umbilicus, and same distance to the left of the mesial line, through which the omentum protruded largely. Recovery occurred in this case after ligation and excision of six inches of protruding omentum. The omental stump and ligature were left within the cavity, the external wound

being closed by three deep stiches of double horse-hair. In about forty days the patient was found to be "quite well."

Dr. GIBBES relates next a most interesting case of "Interstitial Pregnancy," in a negress 35 years of age, and the mother of six living children. Death occurred from rupture of the sac and hemorrhage into the abdominal cavity.

A paper by Dr. JAMES MCINTOSH follows, on "Dysmenorrhœa" and its treatment with the sulphate of quinia and extract of datura stramonii seminis. The results of an experience with each of these drugs, used separately, led Dr. M. to unite them in the following proportions, varied according to the requirements of each individual case. "Give a pill consisting of  $\frac{1}{4}$  to  $\frac{1}{2}$  gr. ext. daturæ stramon. sem.;  $\frac{1}{2}$  to 3 grs. sulph. quiniæ;  $\frac{1}{4}$  to  $\frac{1}{2}$  gr. opii; 1 to 2 grs. camphor, three times a day for 5 days; beginning 3 days before the catamenial discharge, and continuing for two days after its inception. The same treatment is to be commenced just previously to the next monthly period, and usually from four to eight repetitions, where there is no mechanical obstruction, will secure a regular, painless monthly flow." Latterly Dr. M. has added pulv. ipecac. to the above pill, and, as he states, "with benefit." "With the foregoing treatment should always be combined such emmenagogue and ferruginous medicines as an anaemic or other condition may require, while special directions should be given to procure a daily action of the bowels. A careful avoidance must be observed of exposure to cold or wet, and great care in keeping the feet warm, and a good circulation in the lower extremities generally."

Dr. T. GRANGE SIMONS relates a case of "Atresia Vaginæ," in which death occurred from tetanus at the menstrual period; with an account of post-mortem appearances. The left ovary was bound down to the uterus by broad bands of adhesion; length of uterus two and a quarter inches; greatest width one and three-quarter inches. The uterine canal was obliterated, except at the cornua; no trace of cavity or os. The Fallopian tubes on both sides obliterated from uterus to fimbriæ, but patent from fimbriæ to ovary. Pelvis contracted antero-posteriorly to two and a half inches.

The next paper is on the "Origin of Carbonate of Ammonia." A theory of its origin as the precipitate of the ammonio-magnesium phosphates is advocated.

A paper containing the histories of a series of surgical cases of more or less interest is communicated by Dr. R. A. KINLOCK.

Dr. R. W. GIBBES relates a case in which cysticerci were found in the human heart as well as in other muscles.

The histories of two cases are given by Dr. B. W. TAYLOR of "Albuminuria complicating Pregnancy," and continuing during the puerperal period. Convulsions on day after delivery in one case. In the second case general anasarca in eighth month of pregnancy, with albuminous urine, which continued after delivery for some twenty days; no convulsions.

Dr. H. W. DE SAUSSURE relates some cases of "*Glanders*" in the human subject, death resulting in one case from infection derived from simple attendance upon a diseased horse.

A case of "Extra-uterine Pregnancy" is related by Dr. JOHN T. DARBY, as one of *abdominal fœtation*. Although, in this form of extra-uterine pregnancy, surgical interference promises better results than in either of the other forms for the life of the mother, yet in Dr. D.'s case death was the unfortunate result.

2. The first Communication to the Rhode Island Medical Society (read Sept. 21, 1870), on "Mysterious Epidemic Influences," by JAMES H. ELDREDGE, M.D., would seem to confirm a remark made by the late Dr. JOSEPH PARRISH, that, so far as his experience went, there appeared, at times, a species of epidemic influence causing the prevalence, in the same communities or neighbourhoods,

of the same forms of chronic disease, abnormal nutrition or metamorphosis of tissues, or even the same kinds of accidental injuries, in groups or rather in rapid succession.

The second communication, on "Popliteal Aneurism" (read Dec. 21. 1870), by S. CLAPP, M.D., is a highly instructive paper. The treatment of popliteal aneurism by pressure and by ligature is duly considered in general terms. Dr. C. gives Syme's method, by ligature, the preference; "believing it to be the *safest, least painful, and surest of success.*"

In the third communication, by L. F. C. GARVIN, M.D., it is maintained that alcohol is not a *necessary* article of food, and that, even as a stimulating condiment at our meals, its popular use is of very doubtful propriety.

In the fourth communication on "Vaccination" (read Sept. 20, 1871), the author, E. T. CASWELL, M.D., presents a masterly exposition of the prophylactic powers of vaccination against smallpox, and a triumphant vindication of the process from all the objections urged against it.

In the fifth communication (read March 15, 1871), the author, G. CAPRON, M.D., presents some sound practical suggestions on the use of ergot.

In the sixth communication, Dr. C. W. PARSONS discusses the therapeutic application of chloral-hydrate. The ascertained properties of this comparatively new article of the *Materia Medica* point to its usefulness in three kinds of cases: "1. In such conditions as are attended with morbid wakefulness; or as a hypnotic. 2. In any very painful or distressing diseases; as an anæsthetic. 3. In convulsions, or any forms of motor excitement."

3. The Transactions of the Twenty-first Anniversary Meeting of the Illinois State Medical Society are highly interesting. The first paper, by Dr. E. L. HOLMES, is an instructive statistical report of 8967 cases of disease of the eye examined by him during the last fourteen years, of which number 243 presented abnormal conditions of the lens—201 being various forms of cataract. In seven of the cases of cataract, extraction by the flap operation was performed; in 12 cases the same operation, preceded by *iridectomy*; in 9 cases extraction was by the *linear* operation; in 3 cases the same operation, with preliminary *iridectomy*; in 45 cases extraction was performed by Graefe's modified linear extraction; in 2 cases the lens was depressed; in 14 cases extraction was by corneal division; in 11 cases by sclerotic division, and in 16 cases the operation was for the removal of capsular remains. Of the 46 extractions through the modified linear section 6 were total failures, and in 40 the result was good. Dr. H. remarks, "that of those 40 successful cases, 32 occurred in succession, with scarcely an accident during the operation, or pain after it. Of these favourable cases, two were complicated with adhesions of the iris: two with solution of the vitreous humour, and four with sequelæ of chronic conjunctivitis. Of the six unfortunate cases, two were complicated with extensive posterior synechia, and two with serious sequelæ of conjunctivitis. All of these unfavourable results were due to iritis, except one, in which there occurred a fearful suppurative irido-choroiditis."

The report of Dr. N. S. DAVIS, of Chicago, on the "Medical Uses of Carbolic Acid," is confined to "a plain statement of his own experience in regard to the employment of the remedy." In the various grades of irritation, or morbid sensibility of the mucous membrane of the alimentary canal, especially in children, Dr. D. has found it a very valuable remedy. In conclusion, he remarks, "From the foregoing details, it will be seen that we do not regard carbolic acid as a specific for the cure of any form of disease, but from its mildly sedative influence on the organic nervous system and mucous surfaces, coupled with strong

antiseptic properties, it is admirably adapted to meet certain indications that arise during the progress of a great variety of diseases."

The report on "Cholera Infantum," by Dr. D. W. YOUNG, presents a very fair monograph on the disease. The correctness, in their general outline, of the views inculcated in respect to the causes, the pathology, and the treatment of cholera infantum, is confirmed by our own prolonged and careful study of the disease. We would, however, object to the use, as recommended by Dr. Y., of alcohol in cholera infantum, either as a preventive or remedial agent.

A very outspoken report on "Criminal Abortion" is presented by Dr. ADDISON NILES, of Quincy, Ill. The daily increase of foeticide by criminal abortion reflects no slight amount of shame upon such females as make themselves *particeps criminis*, and of positive guilt upon the physician who shall lower himself so far as to become the voluntary perpetrator of the crime.

The report "On Surgery" was divided between the two members of the committee, the improvements in "General Surgery" being committed to Dr. E. ANDREWS, of Chicago, and those in "Plastics and Orthopedics" to Dr. D. PRINCE, of Jacksonville, Ill. The first section of the report presents a full account of domestic contributions to general surgery. In the second portion of the report, which occupies fifty-six octavo pages, illustrated by 38 wood engravings, Dr. PRINCE has given a very full and instructive exposition of the leading improvements recently made in Plastic and Orthopedic surgery.

4. The Twenty-third Annual Session of the Pennsylvania State Medical Society was opened by an Address from the President, Dr. J. S. CRAWFORD.

Following this was an instructive "Address on *Obstetrics*," by Dr. W. L. ATLEE, of Philadelphia. He selected for his theme—*The Speculum; its use in the diagnosis and in the treatment of the Diseases of the Uterus*.

Reports were received from seventeen of the County Societies; some of which are very meagre and unsatisfactory. A few make no reference to prevailing diseases, being devoted entirely to biographical notices of recently deceased members; others notice only the prevailing diseases in that portion of the county to which the practice of him by whom they were drawn up was confined, or to a single one of the most formidable of the prevailing diseases. With very few exceptions, the reports are deficient in meteorological observations and in accounts of medical topography—circumstances so essential to be known in the investigation of the etiology of endemic and epidemic diseases.

The reports seem to indicate a very decided decrease in the prevalence of fevers of recognized miasmatic origin, even in many of those portions of the State where formerly those fevers prevailed as an annual endemic, and where few escaped an attack.

Typhoid or enteric fever would appear to have supplanted, in many locations, their former malarial endemic. It has certainly prevailed, during several years past, more or less extensively, and in a type of greater or less severity in different localities throughout the State. In some of the miasmatic districts there prevails a form of typhoid fever, which commences as an ordinary malarial remittent, and assuming, sooner or later, the diagnostic characteristics of enteric fever.

Relapsing fever is noticed in several of the County Reports as having appeared during 1871-2 to a limited extent. In the report from Philadelphia County it is stated, that, while in 1870 the deaths in that county from relapsing fever amounted to 155, in the period embraced in the report before us they were only 7.

The disease which prevailed to the greatest extent within the bounds of the State was smallpox; few sections have been entirely free from its visitation.

Though in some places the origin of the disease could be clearly traced to contagion introduced by infected persons or by fomites from without, the disease, as it has spread throughout this country, and during the last few years over the larger portion of Europe, has assumed the unmistakable features of an affection that owes its origin and rapid spread chiefly to some general epidemic morbific cause. In the report from Philadelphia County, where the disease prevailed to the greatest extent, will be found a series of interesting facts bearing mainly upon the etiology of the malady.

In every report the testimony is very strong in favour of vaccination and revaccination with pure efficient matter as a certain preventive, when opportunely performed, against the introduction and spread of variola among a community.

Scarlet fever prevailed, to some extent, throughout Pennsylvania. It was generally of a mild type, with little affection of the throat or serious sequelæ, nor was it productive of a large mortality. Its milder and less destructive character may, in part, be attributed to the hydro-therapeutic unstimulating treatment to which it has been recently subjected.

The same remarks may be made in respect to measles. The disease was mild and easily managed, except when complicated with bronchitis, pneumonia, or with pertussis. The latter complication was frequently met with in the neighbourhood of Sharon, Mercer County.

Cerebro-spinal meningitis prevailed pretty generally throughout the State, in some sections to a much greater extent than in others. Upon the whole, the mortality produced by it was much less than was the case in the widespread epidemic prevalent a few years since. The report from Bradford County is made up almost entirely of a sketch, by Dr. E. P. ALLEN, of the disease as it prevailed in the *county* during 1871. The sketch will very fairly depict the disease as it was met with in other sections of the State.

Diphtheria prevailed extensively in the State. A better acquaintance with the true character of the disease and a consequent adoption of a more rational plan for its treatment has disarmed it of much of the fatality to life which was formerly incurred by its attack.

Dr. DICKESON, of Media, Delaware County, describes an anomalous form of eruptive disease, which he believes to have been "epidemic varioloid, or varicella, with a modified eruption."

D. F. C.

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ART. XXVI.—*The West Riding Lunatic Asylum Medical Reports.* Edited by J. CRICHTON BROWNE, M.D., F.R.S.E. Vol. ii. 8vo. pp. 306. London: J. & A. Churchill, 1872.

IN reviewing the first volume of these Reports a year ago, we took occasion to advert to the somewhat common complaint that the medical officers of insane hospitals contributed little to the common stock of professional information. We referred to some of the peculiar conditions of hospital life as partly answerable for the little time and attention devoted by alienist physicians to systematic experiment and literary labour. We pointed out the supreme importance, to many curable and convalescent patients, of frequent and protracted social intercourse with the officers. However desirable it may be that observations should be carefully made and recorded, and physiological and therapeutic investigations widely extended, it is infinitely more desirable that minds struggling upwards towards the light from out the gloom of melancholia—deep as

the very shadow of death itself—or beginning to regain steadiness and self-control after the stormy chaos of acute mania, should be cheered, aided, and strengthened by those who best understand their trouble. To accomplish this good end, nothing so well avails, at least among patients of some culture and refinement, as familiar personal contact with the medical superintendent. Upon him rest their hopes of cure, and of restoration to the world. In him they put their trust more than in any other earthly being. In his presence they find the highest incentives to self-control and propriety of conduct. To deserve his approval they will put forth wholesome efforts which could never be elicited by the best endeavours of the kindest attendants.

While thus striving to remove the unjust reproach cast upon the officers of insane asylums for apparent indolence or neglect, we yet were glad to learn that the officers of a very large English asylum<sup>1</sup> had resolved to write out and publish the results of such observations and investigations as seemed most likely to be interesting and profitable to their brethren in other walks of medicine.

The volume before us is hardly equal in interest and value to its predecessor. It seems a little as if the editor had determined upon a goodly volume yearly, without any great regard to the quality and real worth of the articles furnished.

Of the thirteen papers which compose this volume, five only are by men actually connected with the asylum. Six are by past members of the hospital staff; and two—that on electricity and that on impairment of language—by men having no connection with the asylum, though allowed to use its cases.

In the opening essay, J. Wilkie Burman, M.D., of Edinburgh, an officer of the asylum, gives the results of his experiments upon the physiological and therapeutical action of the alkaloid conia. The succus conii had been much used in the asylum; but often with very unsatisfactory results in commencing on new parcels, some proving nearly inert. This testimony to the great inequality of different lots of succus conii agrees closely with American experience. In using the alkaloid, it was hoped that all uncertainty and inequality would be avoided; but this did not prove to be the case. Not only were some specimens more active than others, but one possessed a peculiar acridity, together with a paralyzing effect on the heart which does not belong to the pure drug. Nevertheless the writer believes that from certain prominent chemists a safe and reasonably uniform article may be now obtained.

Physiological researches were made in experiments upon pigeons, frogs, rabbits, guinea-pigs, dogs, and cats, and repeatedly upon the writer's own system and those of able-bodied officers and attendants. He used the subcutaneous method, because of the supposed highly irritant effect of the drug on the stomach. To avoid such action in the cellular tissue, he neutralizes the conia with acetic acid, according to a formula which he gives. The combination possesses all the medicinal effect of the alkaloid. Though admitting a belief that the drug thus combined might be given by the stomach, he says he never has so given it, but has continued to administer it by the subcutaneous method. This is to be regretted. We confess to an old-fashioned prejudice in favour of the natural channels for the administration of medicines. The hypodermic system, now so much in vogue, harmless as it usually is, yet is attended with a certain degree of risk, to say nothing of its unpleasantness.

Both physiological and therapeutical experiments, as well described by the writer, indicate that we have in this alkaloid a very powerful and valuable drug. Various preparations have long been used and highly prized in American hospitals for the insane; but have often proved weak and inefficient. Dr. Burman

<sup>1</sup> Containing from ten to twelve hundred patients.

believes the drug to act especially on the motor centres. A combination of the acetate of conia with the acetate of morphia has been found especially beneficial in cases of high maniacal excitement.

Dr. Herbert C. Major gives the results of a careful comparison, under the microscope, of sections of gray matter from corresponding convolutions of two brains: one healthy, and the other atrophied from chronic mental disease. He begins by quoting and confirming a statement of Dr. Lockhart Clarke, that there is a difference in the relative proportion and arrangement of the brain-elements in different portions of the brain. In other words, in healthy brains the gray matter is thicker over certain convolutions than over others. This, if true, is certainly as important a fact as he deems it to be. Whether true or not, the method of observation which he adopted is unobjectionable. This was to make precisely correspondent sections from the sound and the atrophied brains, and compare them under the microscope. While aware that observers, to whose skill, experience, and judgment he is disposed to defer, have failed to recognize such diversities in healthy gray matter, and even in the cortical substance of sane and insane brains, he yet confidently maintains that his observations were correctly made. The entire aspect of the diseased sections was different from that of the healthy ones. The difference principally consisted in a diminution of the normal, large, angular, and fusiform nerve-cells, with an increase of the smaller cells and nuclei.

One point—all-important to the conclusiveness of these comparisons—is entirely ignored. Not a word is said as to the manner in which, or the length of time during which, these brains had been preserved before the sections were made. Unequal post-mortem change may have caused all the difference described. This course of inquiry is, however, of great importance, and we hope that Dr. Major, in multiplying his observations, may ultimately arrive at valuable results.

A paper on "Menstrual Irregularities and Insanity" adds little to the amount of our knowledge on the subject. The writer has, however, the good sense to escape the absurdities of some authors who, guided by their preconceived notions rather than by facts, are determined to find in checked menstruation the source of half the insanity of women, and in the restoration of the function the cure of at least as large a number.

The next paper, by Dr. Samuel Mitchell, details some experiments made upon the anaesthetic properties of a mixture of ether-vapour and nitrous oxide gas. Beginning with rabbits, the author subsequently proceeded to trials of the mixture upon himself and upon some of his friends. From these he is led to believe that anaesthesia is more easily and safely produced by the compound than by either agent alone. Some "general observations on stimulants" are appended, in which it is argued that stimulation, so-called, is but the first stage of narcotism. When nervous irritability is relieved by a "stimulant," the effect is due to the paralyzing action of the drug, wholly arresting activity in parts too feeble to act properly.

"Cranial Injuries and Mental Diseases," by J. Crichton Browne, M.D., editor of the work, is a continuation of an article in the previous volume. This paper deals with the mental results as determined by the locality of the cranial injury, and also describes the various mental manifestations liable to follow injuries to the head generally. Attention is directed to the frequency with which cerebral mischief appears diametrically opposite to the seat of violence. Epilepsy following frontal injury is regarded by the writer as a case of this sort. Two original instances are given: one extremely interesting from the varying fullness, pulsation, and colour of the scalp, covering a large aperture in the skull.

In this case, at the outset of epileptic convulsions, the cicatrix would appear bloodless and much sunken; afterwards, for an hour or more, turgid and bulging. Several other cases and experiments are quoted where the phenomena are explicable on the theory that the shock is so transmitted by the arched cranium as to be most destructive opposite the point of impingement. Injury to the third frontal convolution, and to the cerebellum, are referred to in connection with impairment of speech and modification of the sexual instinct.

Many cases are given to illustrate the varied mental phenomena following severe cranial injury. Most of these have been before published. Altogether, this instalment of Dr. Browne's essay, though very interesting, and containing many new cases with the old ones, can hardly be said to add much to the sum of professional knowledge.

An article on "Puerperal Mania" by Geo. Henry Pedler contains some interesting statistical tables of the disease as seen in the West Riding Asylum. A division, not altogether useless, is suggested, into "nervous," "anæmic" and "toxic" cases. In support of the latter designation the author mentions the conditions after delivery, which might not unnaturally lead to blood-poisoning.

Dr. Major makes his second appearance in this volume as the inventor of an ingenious little instrument for the measurement of the thickness of the gray matter covering the cerebral convolutions. He justly reasons that if the weight and measurement of the brain as a whole are of any value as helping to an estimate of intellectual power, the thickness of the gray matter, upon which mental processes are known to be dependent, must be of still greater significance. His device is simply a cylindrical glass tube, finely graduated, open at both ends, with the lower end brought to a circular sharp edge by grinding off the outside. This tube, by means of a slight rotatory movement, is made to penetrate, perpendicularly, the denuded surface of the cerebral convolutions. If the membranes are wholly removed the instrument penetrates like a punch, cutting without bruising. Placing the pulp of a finger upon the upper orifice, the tube can be removed, bringing out a cylinder of brain substance, of which the gray portion can be measured by the divisions which it covers. Tables are constructed containing the printed names of the principal convolutions, with blanks to be filled with the results of multiplied measurements taken in each locality. We are disposed to regard this little instrument as one of real value. It makes certainly the first approach to accuracy in estimating that portion of the cerebral substance acknowledged to be alone concerned in intellectual action. Dr. Major believes that different convolutions of healthy brains exhibit a diversity of thickness in the gray matter that forms their exterior, certain parts being always thickly, and certain others thinly, covered.

Dr. Patrick Nicol writes upon "The Mental Symptoms of Ordinary Disease." The leading idea seems to be, that diseases of organs not immediately connected with the mental powers do yet tend to produce certain kinds of mental disturbance. A knowledge of such tendencies, therefore, may give important suggestions as to the treatment of insane patients. Illustrative cases are first presented to show how diseases of an organic character attacking the brain, affect or leave unaffected the intellectual powers, according as the gray matter of the convolutions is, or is not, involved. General remarks follow upon the well-known tendencies of certain classes of bodily disease to affect the brain secondarily, producing all grades of disturbance, from slight exhilaration or depression to mania or profound melancholia.

A paper on "The Electric Treatment of the Insane" states the results of the electric constant current, applied to the head and the neck, in various forms of cerebral disease. In one case of "brain-wasting" and in three of melancholia,

no good resulted from this treatment. A very few cases of mania are regarded by the author as exhibiting benefit from such treatment. In acute dementia, the writer believes he has obtained more decided good effects. It is only fair to say that Dr. Allbutt does not claim any very great or marked results so far, though he regards the treatment as well worth an extended trial.

Dr. Aldridge, who contributed to the previous volume some valuable observations on the "Ophthalmoscope in Mental and Cerebral Diseases," publishes in the present issue some further observations as to the effects of certain drugs upon the intra-ocular circulation; together with the results of ophthalmoscopic examination in forty-three cases of "general paralysis." Nearly all the cases examined were somewhat advanced. In most of them a bloodless and atrophic condition of the whole or some part of the papillæ was observed, while in others a degree of passive congestion was present. We cannot see that, so far, these observations afford much help toward an understanding of the pathology of Paresis. Nevertheless, such inspections should be made and recorded, in the faith that ultimately they will be useful.

The drugs whose effects upon the circulation in the optic disks are here described, are belladonna, hyoscyamus, and picrotoxine (the active principle of *cocculus indicus*), as productive of hyperæmia; and laburnum and ergot as causing anaemia. Only four cases are adduced as supporting the author's view of the action of belladonna, and two of hyoscyamus; but in these the experiments were often repeated, with uniform results. Picrotoxine was tried only upon the lower animals, acting as a very powerful poison, causing hyperæmia of the disks and of the brain. Laburnum and ergot are believed to cause anaemia of the disks; but only one case illustrative of the action of each drug is here adduced.

In a paper on "The Use of Opium in the Treatment of Melancholia," Dr. E. Maziere Courtenay vigourously assails the position of those who of late years have so malignantly condemned and vilified the use of this drug in insanity. Notwithstanding the denunciations of some writers of high repute, Dr. Courtenay dares to say that, far from being made worse, weakened, impoverished in blood and weight, injured in appetite and digestion, by the use of opiates, many patients gain in sleep, general tranquillity, cheerfulness, appetite, digestion, strength, and weight.

While disposed to admit that this class of remedies has been abused, we believe, with Dr. Courtenay, that they are of very great value in many cases, including, though not confined to, melancholia. It is certainly a great mistake to maintain that even the protracted use of opiates is incompatible with good appetite, digestion, and nutrition.

Dr. W. A. T. Browne contributes an article on the "Impairment of Language the Result of Cerebral Disease." We can hardly give an idea of the import of this somewhat speculative paper, better than by quoting a few of its closing words. "A very large number of different deviations from the normal use of language must be taken into consideration besides its abolition, before we are in a position to generalize confidently upon the subject. It must be confessed that the physiological and pathological evidence as to the localization of an organ for such a faculty is as yet incomplete or contradictory." It is added that the weight of research and opinion favours the belief that some parts of the anterior cerebral lobes are connected with the articulate expression of thought.

Dr. George Thompson, whose applications of the Sphygmograph within the asylum wards furnished matter for an interesting paper in the previous volume, now gives us three tracings taken during the *status epilepticus*; one being es-

pecially curious from the fact that a fit came on while it was taking, and thus recorded itself upon the paper. The tracings obtained during the *status epilepticus* are much nearer a straight line than those of health; the angles are all rounded off and the aortic notch wholly absent.

B. L. R.

ART. XXVII.—*A Practical Treatise on Urinary and Renal Diseases, including Urinary Deposits. Illustrated by numerous cases and engravings.* By WILLIAM ROBERTS, M.D., F.R.C.P. Lond.; Physician to the Manchester Royal Infirmary, etc. Second American from the second revised and considerably enlarged London edition. 8vo. pp. 616. Philadelphia: Henry C. Lea, 1872.

THE importance which the kidney and its secretion have within late years assumed in the investigation of disease has rendered their study peculiarly attractive to the physician; hence, we are not surprised to learn that the first edition of Dr. Roberts's excellent treatise and the American reprint were exhausted some three years ago. The author has been unable, until lately, to undertake the revision of the work, but it has not suffered by the delay, for in almost every chapter evidence of careful emendation is found.

Two articles, one on suppression of urine, the other on paroxysmal haematuria, have been added. The former was one of the author's contributions to the first volume of the *Manchester Medical and Surgical Reports*, and was analyzed in the No. of this Journal for July, 1871, page 188. The author calls attention to the remarkable absence of coma and convulsions—the most common features of clinical uræmia—in cases of obstinate suppression of urine; and the cases related show that fatal suppression of urine, from blocking up of the ureters, generally runs its course without the usual symptoms of uræmia, as witnessed in Bright's disease.

In the article on Urea, we read that "the immediate effect of muscular exercise appears to be to restrain (or at least not to increase) the excretion of urea, but it is increased in the period of rest which follows exercise." This statement, although in accordance with the results obtained by Fick and Wislicenus, Frankland and Haughton, is disproved by the accurate and elaborate observations made by Dr. Austin Flint, Jr., upon a well-known pedestrian (see this Journal for January, 1872, page 163), and with which Dr. Roberts appears to be unacquainted.

Among the errors of omission, we also notice the absence of any mention of an illusory detection of fat in the urine, which was pointed out a short time ago by Messrs. Lea and Atlee.<sup>1</sup>

Dr. Roberts calls attention to the pigmentary particles which are almost constantly to be seen, by the aid of the microscope, in the urine, and which, strange to say, seem to have been heretofore undescribed. They appear either as free amorphous particles of a reddish-brown colour, varying in size from mere specks to particles as large as pus-globules, or as cell-like bodies, with an oblique, ovoid, well-defined outline, within which lie masses of red or orange pigment, often very unequally distributed. When the celloid is stuffed, as it were, with the pigment, it loses its transparency, and appears almost black in the field of

<sup>1</sup> Am. Journ. of Med. Sci., April, 1869, page 357.

the microscope. The celoids vary in size from less than that of a blood-globule to a superficies as large as that of a pavement epithelium cell.

These pigmentary particles keep badly in urine, and disappear altogether when decomposition sets in; they are not confined to any particular state of the urine, and Dr. Roberts has not discovered that they have any precise pathological signification, and is unable to explain their presence. They are especially abundant when there is a copious shedding of epithelium into the urine. Dr. Roberts has found exactly similar bodies in the brain, in the vicinity of old apoplectic clots, in the neighbourhood of old extravasations in other places, in encephaloid growths, and other tumours. Dr. Ransome, of Bowdon, has found them in the condensed (by freezing) breath of all persons. Dr. Roberts has regarded these objects as derivatives of haematin, but how they come to assume their peculiar forms he cannot conjecture.

The account given of paroxysmal or intermittent haematuria is excellent, and the course of the disease is illustrated by the notes of five cases. As regards the treatment, Dr. Roberts thinks that the evidence is strongly in favour of quinia and iron as the most effective medicinal agents.

Under the heading "Albumen," the author has introduced Prof. Vogel's recently proposed method of accurately estimating the quantity of albumen in the urine.<sup>1</sup> The process, however, is too complex and troublesome for ordinary use.

For the quantitative analysis of sugar in the urine, two methods are given—the volumetrical, as perfected by Fehling, and the fermentation. The former is, we think, the preferable in that the analysis can be finished in a few minutes, whereas the fermentation method requires twenty-four hours for its completion. The main obstacle in this country to the more general use of the volumetrical method is the difficulty of procuring pipettes accurately graduated, either to grains or minimis; those which are ordinarily sold in the shops being notoriously inaccurate. We were, some time ago, so fortunate as to have made by Mr. Pile, of the cor. of Passyunk Ave. and Catharine St., Philadelphia, some pipettes graduated to minimis, which we can confidently recommend for their accuracy. The advantage of using pipettes graduated to minimis is, that we are thereby enabled to calculate the number of grains of sugar in minimis, instead of grains, of urine.

The volumetrical analysis as modified by Pavý<sup>2</sup> is, we think, an improvement upon the method given by Roberts, and is, in outline, as follows: The test solution to be used is composed of sulphate of copper 320 grs. Tartrate of potash (neutral) 640 grs. Caustic potash (potassa fusa) 1280 grs. Distilled water 20 fluidounces. 100 minimis of this solution are just decolourized by half a grain of grape sugar; therefore the number of minimis of urine necessary to decolourize 100 minimis of this solution must contain one-half a grain of sugar, and, as there is one-half a grain of sugar in this number of minimis of urine, it is easy to calculate how many grains there are in 480 minimis (one fluidounce). By multiplying the figure representing the amount of sugar per fluidounce of urine by the coefficient .23, the quantity of sugar may be reduced to a percentage proportion.

Concerning the fermentation method, it is gratifying to know that Dr. Hensley<sup>3</sup> has recently investigated its accuracy and finds that the rule arrived at, experimentally, by Dr. Roberts—namely, that one degree of density lost in fermenta-

<sup>1</sup> Deut. Archiv für Klin. Med. 1867.

<sup>2</sup> On Diabetes. 2d ed. p. 26.

<sup>3</sup> St. Bartholomew's Hosp. Rep., vol. iii.

tion corresponds to one grain of sugar per ounce of urine, agrees very closely with the theoretical result obtained by calculation.

The recent observations of Dr. Dickinson on the morbid anatomy of diabetes mellitus (see No. of this Journal for April, 1870, p. 539) are introduced into this edition.

Doukin's skim-milk treatment of diabetes<sup>1</sup> has not been successful in Dr. Roberts's hands. "I have seen," he says, "several patients who have tried this severe method. Few of them could tolerate it except for a few days—and those who continued longer were rapidly reduced. Three chronic cases I know of, in which the treatment was obstinately persevered with, died from exhaustion." Bromide of potassium, prussic acid, and Calabar bean, the author has found useless, and peroxide of hydrogen and ozonic ether he has also tried, "only to find that the hopes held out with respect to them were altogether delusive."

In the treatment of diabetes insipidus, it is stated, that the application of the constant galvanic current has recently been tried with a promise of success. In Dr. Seidel's<sup>2</sup> case thus treated, "in 8 days, the urine had fallen from 5957 c. c. to 4600 c. c., and after three weeks to 2300 c. c., and next month to 1904 c. c. Simultaneously the weight of the body increased by nine pounds. The amendment was found to be maintained at the end of three months." Another case similarly treated and with like success, by Erb, of Heidelberg, is referred to.<sup>3</sup>

The true pathology of chylous urine, Dr. Roberts believes is to be sought for in the lymphatics of the urinary channels; and that the real analogues of the disease are to be found among those curious cases of chylous and lymphous discharges from the cutaneous surface, of which a number of examples have been published of late, and one by Dr. Roberts himself. (See No. of this Journal for July, 1871, page 186.)

In the article on amyloid degeneration, we regret not to find a detailed statement of the recent and admirable researches of Dickinson,<sup>4</sup> on the etiology and pathology of this disease: in the work of a contemporaneous English writer this omission seems inexcusable.

The book, however, is a good one; indeed we do not know of any systematic work on urinary and renal diseases in which they are treated so correctly and thoroughly as in the one now before us.

I. M. H.

ART. XXVIII.—*The Heart and its Diseases, with their Treatment.* By J. MILNER FOTHERGILL, M.D., M.R.C.P. 8vo. pp. x., 382. London: H. K. Lewis, 1872.

DR. FOTHERGILL, while admitting that there are already a great many excellent treatises on Diseases of the Heart, seems to think that the advances made in physiology during the last few years have made room for at least one more. He certainly exhibits in his work a very fair acquaintance with the discoveries of recent French and German investigators, but we see no reason why he should claim in this respect any great advantage over Walshe or our own countryman, Flint. His arrangement of subjects is, moreover, not nearly

<sup>1</sup> Am. Journ. of Med. Sci., April, 1872, p. 498.

<sup>2</sup> Schmidt's Jahrb., Bd. 130, p. 97.

<sup>3</sup> Med. Times and Gaz., vol. i., 1868, p. 327.

<sup>4</sup> Am. Journ. of Med. Sci., April, 1864, pp. 458 and 491.

so systematic as that of the authors just alluded to; his style is diffuse and rather heavy, sufficiently so to prevent the book from ever becoming a recognized text-book. There are in addition many evidences that it has been hastily prepared for the press, and it is rarely that we have occasion to read a book which contains so many typographical errors. Some of these are almost ludicrous; thus we have emphysema for empyema; locomotor artery for locomotor ataxy; fremissement ectaire for fremissement cataire; mediastrium for mediastinum; nitrate of amyl for nitrite of amyl, etc. The names of authors are quite as frequently incorrectly as properly spelled.

The work is, however, not by any means devoid of merit, and we propose in the following brief notice to lay before our readers the author's views in regard to some points of the pathology of heart disease, and especially in regard to hypertrophy. This, as well as valvular disease, the author says, very frequently arises in those whose occupation obliges them to use much physical exertion, and in the following way: The muscles of the body largely cross the arteries, and, when in action, constrict them and impede the flow of blood through them. In this condition of muscular activity the circulation of the blood through the capillaries of the muscles is also interfered with. The obstacle thus offered to the arterial flow, if constantly renewed, soon causes hypertrophy of the left ventricle, and then the blood is forced into the aorta under greater pressure, while its progress is hindered, and the aorta is in consequence excessively distended and recoils forcibly, driving together the aortic valves under unwonted pressure. This in time evokes valvulitis, with its changes. But this obstruction to the flow is not all the mischief in these cases. While the muscles obstruct the arterial circulation they aid materially in accelerating the venous flow. This leads to the accumulation of the blood in the great veins and in the right cavities of the heart, the walls of which, to overcome the impediment in the pulmonary circulation caused by the difficulty with which the left ventricle disposes of its contents, become hypertrophied. The blood is now driven into the left ventricle under increased pressure, and dilatation is added to the already existing hypertrophy; further hypertrophy then supervenes, and a condition of dilatation of the left ventricle with decided hypertrophy is established. From the left ventricle again a large quantity of blood is thrown at each systole into the aorta, and a condition of over-distension of it kept up; this adds further to the strain and to the consequent valvulitis.

The descriptions of the lesions, symptoms, and treatment of endocarditis and pericarditis present no peculiarity, and therefore do not seem to demand any special notice. We find, it is true, one or two inaccuracies; thus we are told that the murmur of aortic constriction is exactly simulated in time and position by the anæmic bruit, and it does not seem to us that the points of distinction between pericardial friction sounds and endocardial murmurs are so clearly indicated as they might have been. After speaking of the difficulties which occasionally surround the diagnosis of a pericardial murmur, the author alludes to the fact that the "to-and-fro" character may not be pronounced enough to determine the question, and calls attention to the usual seat of the sound, as differing from that of any of the murmurs originating within the heart, and also to the plan recommended by Dr. Chambers of applying the ear to the stethoscope, finding the murmur, and then withdrawing the ear gradually from the stethoscope, retained *in situ*, noting the persistence of the murmur. He seems not to be aware that friction sounds are not heard elsewhere than in the praecordial region or propagated in the course of the large arteries as are the endocardial murmurs. We are acquainted with no better distinctive signs

between these two classes of sounds than these, and are surprised that Dr. Fothergill has entirely omitted all mention of it.

The treatment of hypertrophy, dilatation, and valvular diseases of the heart is discussed in a separate chapter. Dr. Fothergill is well known as an advocate for the administration of digitalis in all cardiac maladies in which it seems desirable to increase the force of the heart's contraction. He even goes so far as to deprecate the fear of its cumulative action, attributing to this fear the occasional discontinuance of the medicine before it has exerted its full influence upon the heart. Belladonna possesses, he thinks, some of the properties of digitalis, and may sometimes be given to supplement it, and this is also true of scoparium and squills. All these agents increase ventricular contraction, and are indicated whenever the heart is acting feebly, because—1. More perfect ventricular contraction causes a larger bulk of blood to be thrown into the arteries at each systole. 2. This produces more perfect arterial distension. 3. This, in the elastic arteries, leads to more perfect recoil. 4. The aortic systole is the propelling power into the coronary circulation, and more perfect recoil leads to improved coronary circulation; and 5. This conduces to more perfect nutrition of the heart itself.

A large portion of the book is devoted to the discussion of the relations existing between diseases of the kidneys and those of the heart. The author adopts the views of Dr. George Johnson in regard to the existence of hypertrophy of the walls of the arterioles in Bright's disease. This condition of the small arteries renders necessary an increase of the propulsive power of the heart, and hence we frequently have hypertrophy of the left ventricle present at some time or other during the continuance of this disease. Unfortunately this hypertrophy soon gives place to dilatation, which in its turn tends to produce fresh lesions of the kidneys. Diseases of the heart, originating from other causes, are, moreover, in the author's opinion, a frequent source of cirrhosis of the kidneys, in consequence of the congestion which they produce, giving rise to an increased growth of connective tissue.

The concluding chapter is devoted to the consideration of "The Elements of Prognosis in Heart Disease," but our limits will only allow us to say in regard to it, that it contains many valuable suggestions.

In the chapter on "Nervous Diseases of the Heart," Dr. Fothergill introduces, in a highly complimentary manner, a long extract from Dr. Da Costa's admirable article on "Irritable Heart," which appeared in the number of this Journal for January, 1871. The book contains several illustrations, the best of which is a wood-cut, showing the outline of the percussion dulness of the heart, taken from Von Dusch's book.

J. H. H.

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ART. XXIX.—*Cancerous and other Intra-thoracic Growths, their Natural History and Diagnosis:* being the substance of the Lumleian Lectures delivered before the Royal College of Physicians of London, by JAMES RISDON BENNETT, M.D., Fellow, Senior Censor, and Representative of the College in the General Medical Council; Consulting Physician to St. Thomas's Hospital, etc. With five plates. 12mo. pp. viii., 189. London: J. & A. Churchill, 1872.

INTRA-THORACIC cancer, though comparatively rare, is of sufficiently frequent occurrence to render its clinical history and diagnosis a study of practical importance to the physician. The remark of Stokes, concerning cancer of the

lung, made some thirty years ago, "that as yet almost nothing has been done in establishing the diagnosis of this disease," is no longer true, and the literature of the subject has since then been enriched by Mr. Stokes himself, and other distinguished observers.

In the book before us, Dr. Bennett has tabulated thirty-nine cases of intra-thoracic cancer, and a study of them shows that the middle periods of life are those in which the disease appears to be most commonly met with; that the encephaloid is the most frequently occurring form of the disease, and the scirrhous the least. Irrespective of mediastinal tumours, or such as originate in the bronchial glands, all the pulmonary tissues may be the seat of cancerous disease—the investing serous membrane, the substance of the lungs, and the bronchi; so that the leading symptoms may present the characters either of pleuritic, pneumonic, or bronchial disease, and their results.

The diagnosis of intra-thoracic growths is still shrouded in difficulty. All attempts to lay down precise rules for their differential diagnosis based on the physical signs alone, have appeared to Dr. Bennett, little more than waste of time. Indeed almost every case presents peculiarities of its own; and this great diversity of symptoms constitutes the principal difficulty in diagnosis.

It is in the early stages that the symptoms of intra-thoracic cancer are most obscure. The cancerous cachexia is frequently absent until a very late period, or even throughout the whole course of the disease, when the disease has not extended to other organs, particularly those of digestion. Failure of appetite without sufficient assignable cause, and gradually increasing and often marked debility, with quickening of the pulse, are noticed. Then in many cases there is detected evidence of bronchial irritation (and this, whether the lungs have or have not been early implicated) and cough with or without expectoration. The next earliest symptom given by our author is dyspnoea on exertion, which like the cough may early assume a paroxysmal character. On the other hand, the patient may for a long time be quite free from any local subjective symptom even though the growth may have attained to a considerable size.

Physical signs will in most cases be wanting altogether until the disease has made considerable progress, and when the lungs are invaded, physical examination will not always tell us of the fact, nor even whether it be by fluid or by a solid mass that the pleural cavity is filled. A low temperature is usually considered to characterize cancer, but our author finds that increase of temperature may attend the rapid growth of miliary or diffused cancerous deposits. The progress of cancerous disease Dr. Bennett states to be always continuous. Intra-thoracic growths are occasionally met with, which are not cancerous in their nature, but which, during life, are not easily distinguished from cancer. "Scrofulous enlargement of the bronchial gland, hydatid disease, enlargement of the thymus and thyroid glands, have all been mistaken for cancer."

From this bare outline the reader will perceive the difficulty of determining the presence of intra-thoracic cancer, especially in its early stages, and he will appreciate the laudable effort of Dr. Bennett to define the natural history and diagnosis of these growths. But we must not mistake difficulties for impossibilities. "In every instance," Dr. Bennett says, "we must take into careful consideration the history of the case and the order of succession of the phenomena, together with the existing physical signs, and it will generally be found that these do not harmonize with any of the more ordinary forms of disease. By a vigorous application of the principle of exclusion we may often come to a tolerably confident diagnosis even in cases presenting great complexities and difficulty."

I. M. H.

ART. XXX.—*Manual of Human and Comparative Histology.* Edited by S. STRICKER. Assisted by J. ARNOLD, E. BRÜCKE, COHNHEIM, E. KLEIN, W. KÜHNE, MEYNERT, and others. Translated by HENRY POWER, M.B., London, F.R.C.S.; Senior Ophthalmic Surgeon to St. Bartholomew's Hospital, etc. Vol. II. 8vo. pp. xviii., 555. The New Sydenham Society, London, 1872.

THE issue of this translation has been anxiously looked for not merely by those of the profession who are familiar with the English language only, but also by many who under ordinary circumstances can batte with the German. For much of the original of the portions contained in this volume is unusually difficult—particularly the chapter by Meynert on the structure of the brain. But there are other and better reasons for satisfaction than those named; for we have thus placed at our disposal an additional instalment of what is at once the most extended and valuable treatise on histology which has yet appeared.

Our obligations to The Sydenham Society and to Mr. Power are very great, and we feel certain that the issue of the entire treatise will mark an era in the history of medicine which will be the beginning of a greater familiarity by the mass of physicians with this important fundamental subject of medical science.

The first paper of the Sydenham Translation, constituting Chap. XVIII. of Stricker's treatise, is upon the *Liver*, by Ewald Hering, Prof. of Physiology, in the Josefs-Akademie in Vienna. Each lobule of the liver is compared to a "raspberry on its stalk," the penetrating stalk corresponding with the *intralobular branch of the hepatic vein*. In the liver of man the lobules are but imperfectly separated by the connective tissue prolongation of Glisson's capsule, which make the lobules of the pig's liver so distinct; hence, in man, also, the mass of each hepatic lobule is, throughout a great portion of its periphery, continuous with its neighbouring lobule.

The *Larynx* and *Trachea*, by E. Verson, are the subjects of Chap. XIX., and the *Lungs*, by Franz Eilhard Schulze, of Chap. XX. It is very difficult to present from actual preparations a clear account of the minute structure of the lung, while the variety of terms applied to the same portion serve to increase the difficulty of a correct understanding. We do not think the author is peculiarly happy in his exposition of the subject, though, as is generally the case in this excellent treatise, his results are based on his own observations. According to Schulze, the smallest bronchi, usually presenting a diameter of from 0.3 to 0.2 of a millimetre, and even in the smallest animals not less than 0.1 of a millimetre, open into the *respiratory cavities*. These are cylindrical passages, terminating caecally, after dividing dichotomously at acute angles, from two to four times, at a distance of 2-4 millimetres from each bronchial extremity. They present funnel-shaped terminal processes, and similarly pedunculated short lateral branches, both of which, on account of their constricted entrance and wide base, are termed *infundibula*. These respiratory passages do not, like the bronchia, possess uniformly thick, solid walls, but are beset with numerous small polyhedral cavities, with rounded angles and borders, that are in immediate contact with each other, and opening into the lumen of the passage are called the *alveoli*. The passage thus formed by the walls of the closely arranged alveoli, and in a small degree by the free borders of their septa, he terms alveolar canals or passages. These correspond to the *intralobular bronchial ramifications* of Addison, the *lobular passages* of Todd, and *intercellular passages* of Rainey. The paper is illustrated by beautiful drawings of silver-stained preparations, in which the epithelium of the alveoli is beautifully mapped out.

Chap. XXI., on the *Kidneys*, by C. Ludwig, is an excellent paper on the subject, but contains little not previously published. The existence of the looped tubes of Henle, so long a matter of doubt with some histologists, is here accepted, and may be considered a well-determined point in the minute anatomy of this organ, which seems now completed.

In Chap. XXII. the *Adrenals, or supra-renal capsules*, are treated and well illustrated by C. J. Eberth, and the *Bladder* and *Ureters* briefly in Chap. XXIII., by Heinrich Obersteiner, of the Physiological Institute of the University of Vienna.

The *Testes*, including the different forms, movements, and development of the spermatozoids (erroneously printed spermatozoa), by v. La Valette St. George, and the structure of the *Ovary* and *Par Ovarium*, an elaborate paper by Waldeyer, form the subjects of Chaps. XXIV. and XXV.

Chap. XXVI., by Alfred Biesiadecki, Professor in Cracow, treats of the *Skin, Hair, and Nails*. There are few subjects on which ideas are so vague as that of the different forms of the organs of touch. This author acknowledges three forms of touch organs. 1st., the Pacinian or Corpuscles of Vater, composed of the exterior of a sheath formed of concentric capsules of connective tissue, in the middle of the cavity of the innermost of which the axis cylinder of the nerve terminates with one or several finely granular terminal bulbs. The nerve medulla fills this cavity, "forming either a finely granular mass or an irregularly and coarsely coagulated body, that appears dull in comparison with the nerve medulla, but, like it, assumes an intense violet-black colour when treated with solution of chloride of gold." In close proximity to the nerve a large bloodvessel penetrates the corpuscle and forms a close capillary plexus between the outer capsules.

2d. The tactile corpuscles (*corpuscula tactis*) of Meissner and Wagner. These are *oval* corpuscles, contained in certain broad and slightly elevated papillæ, equalling the latter in length and having a diameter of 0.02 to 0.045 of a millimetre. "These are conspicuous for their rigid aspect and their transverse striation, which is partly owing to the presence of fine lines, and partly to fusiform transversely placed highly refractile nuclei. A medullated nerve fibre inclosed in a sheath, containing many nuclei, runs sometimes to the lower pole, sometimes as far as the middle, and sometimes even to the extremity of the corpuscle, frequently winding once or more times round the corpuscle, which is constricted at these points. The nerve at length suddenly loses its medulla, and is no longer capable of being traced."

3d. The corpuscles of Krause are inferred as admitted from the following paragraph forming a part of the description of the corpuscles of Meissner and Wagner: the nerve sheaths "are again, by a few observers, considered to enter a cavity within the tactile corpuscle, and to end by free extremities after the fashion of the corpuscles of Krause, that are elsewhere found." No further description of these corpuscles is given, however, and thus again the matter is not clearly presented.

Chap. XXVII., on the *Serous membranes*, is from the pen of the skilful histologist, Dr. E. Klein, now of London. The serous membranes are described as composed, in general, of an endothelium and a basement membrane or matrix, with lymphatics, bloodvessels and nerves.

This author also treats of the *External generative organs of the male and female, with their glandular appendages*, in Chap. XXIX., while Chap. XXVIII., by C. Langer, is on the *Mammary glands*.

But perhaps the most important as well as the ablest papers are those concluding the volume, on the *Spinal cord*, by J. Gerlach, of Erlangen, and the

*Brain of mammals*, by Theodore Meynert, of Vienna. The latter is a most laborious and apparently exhaustive paper. It would be impossible, however, in the short space of a notice, to give any clear idea of either subject, and we are compelled to refer the reader to the original papers.

Chap. XXXII., on the *Sympathetic System of Nerves*, by Dr. Sigmund Mayer, concludes the volume. J. T.

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ART. XXXI.—*Clinical Lectures on Diseases of Women*. By Sir JAMES Y. SIMPSON, Bart., M.D., D.C.L., late Professor of Midwifery in the University of Edinburgh. Edited by ALEXANDER R. SIMPSON, M.D., Professor of Medicine and Midwifery and the Diseases of Women and Children in the University of Edinburgh. 8vo. pp. xxiii., 789. New York: D. Appleton & Co., 1872.

In the No. of this Journal for July, 1863, p. 188, will be found an elaborate review of a volume entitled "Simpson on Diseases of Women," which comprises a series of clinical lectures, delivered by Sir James Y. Simpson, at the Royal Infirmary of Edinburgh, and which were published in the *London Medical Times* during the years 1859, 1860, and 1861. These lectures were collected and published in book form by Blanchard & Lea, in 1863. The volume now before us, edited by his nephew, who succeeded Sir James in the chair of midwifery in the University of Edinburgh, comprises all the lectures contained in the volume above referred to, together with the lecture "On the Diagnosis of the Diseases of Women," extracted, in full, from Sir James Simpson's *Obstetric Works*, edited by Drs. Priestley and Storer, and ten other lectures not previously published.

In the republished lectures a few verbal alterations have been made. At page 58, to the lecture on vesico-vaginal fistula, the editor appends a note, stating that Sir James, in his later operations "dispensed with the use of the wire splint, and closed the fistula simply by means of the metallic sutures;" and, "instead of cutting off the ends of the wire sutures, he tied them together in a knot, and left them projecting from the vulva, so that, when the speculum was introduced, the individual stitches could be easily seized with the fingers, and removed after the loop was clipped through." To the lecture on "Carcinoma of the Uterus and Mamma," another note is added, stating that "in some cases of carcinoma uteri, where there was no hope of eradicating the disease, and no possibility of excising the affected part," Sir James scooped out with his finger-nail, or curette, "as much as possible of the diseased mass." This is an interesting fact, in view of the importance which a recent contributor to the *American Journal of Obstetrics* (vol. v. p. 309), attaches to the treatment of cancer of the uterus with the curette. At pages 140, 141, and 154, additional tables have been introduced, showing the "mortality from cancer in England as regulated by sex," death from cancer in England (1847, 1861), and Scotland (1855, 1858), and "the percentage of cases of carcinoma uteri occurring at different ages."

Lecture VI., on Pelvic Peritonitis, is the first of the series of ten additional lectures. The lecturer assails the nomenclature of Virchow, and insists that the word Perimetritis inadequately and confusedly indicates the most usual seat of the inflammation. Whilst conceding to Bernutz the full measure of credit due him for his very valuable researches "into the nature of the affec-

tion," he differs from him in regard to the relative frequency of pelvic peritonitis and pelvic cellulitis, and maintains that the infrequency of opportunities to verify the existence of the latter is proof of its more common occurrence, than admitted by Bernutz, for "pelvic peritonitis," says Sir James, "is a much more serious and grave lesion, and one more likely to produce a fatal issue," than pelvic cellulitis. In regard to the pathological anatomy, symptomatology, physical signs, progress, termination, and etiology of the disease, he follows very closely Bernutz, though he lacks completeness and definiteness of description. He denies that metrorrhagia is "an invariable concomitant of the acute stage," and insists that when present "it has invariably seemed to do the patient at least temporary good." The following paragraph is in bad taste, and presents the differential diagnosis of this affection in an aspect entirely too uncertain and indefinite.

At page 112 the author says: "As I cannot, then, point out to you any one feature so salient as to guide us by its existence to immediately separate this from any other disease, it would be perhaps as well to abstain from attempting to do so at all, and, in fact, we see in an able work,<sup>1</sup> only recently published, how completely such an experiment has broken down. Dr. Thomas has drawn up a long series of differential points, of which it may be said that in some cases his statements would answer for both complaints, and that in many others they might be reversed without impropriety." Notwithstanding this slur the above paragraph is followed by quite an elaborate discussion of the diagnosis from pelvic cellulitis and pelvic hæmocele, the only two diseases with "which it is likely to be confounded." There is nothing in the treatment to arrest attention; and passing over the intermediate lectures, which were noticed in the review previously referred to, we come to the second of this series, which is Lecture XLII. of the volume before us. This lecture is a very brief *résumé* of the causes and treatment of "rupture of the perineum," and is devoid of any special interest at this date.

Lectures XLIII., XLIV., and XLV., considered together, constitute a very complete and instructive discussion of "Fibroid Tumours of the Uterus," their varieties, situation, nature, symptoms, transformations, differential diagnosis, and treatment. In regard to their nature, Sir James accepts the views of Virchow, quoting approvingly the following passage from his *Cellular Pathology*. "We find, for example, that the extremely common form of uterine tumour, which has been designated fibrous or fibroid, has, in every respect, the same structure as the hypertrophied uterus has, inasmuch as it consists not only of fibrous connective tissue and vessels, but also of muscular fibre-cells." "The fibres, then," adds our author, "are simply those of ordinary connective tissue, and the nucleated fibre-cells are nothing more than the elements of involuntary muscle." Upon this view of their pathology, Sir James bases the assertion that great changes have taken place, in our opinion, in regard to their curability, and foreshadows yet greater advances in the future.

In regard to the various transformations which uterine fibroids are liable to undergo, and which Sir James seems to regard as spontaneous efforts at cure; he considers the carcinomatous as "altogether exceptional," but adds (p. 670): "If you had to do, indeed, with a patient of a cancerous diathesis, it is just possible that a uterine fibroid polypus might excite a kind of irritation in the uterus that would lead to the occurrence of malignant disease in it." He asserts, with great positiveness, that nature terminates many cases through the processes of fatty, cartilaginous, and calcareous degeneration, by expulsion

<sup>1</sup> A Practical Treatise on Diseases of Women, by Prof. T. GAILLARD THOMAS.

from muscular action, and spontaneous enucleation resulting from inflammatory changes. Frequently, immediately after parturition, the fibroid masses take on inflammatory action, becoming soft and oedematous, sometimes gangrenous and sloughy, and are finally eliminated or enucleated.

The symptomatology and differential diagnosis of fibroid tumours is very complete, and will well repay careful study. Though asserting that there is no "symptom pathognomonic of fibroid tumours of the uterus," his very graphic delineation of the group of phenomena brings out so distinctly the salient points, that we feel well assured few mistakes would occur in diagnosis if the lessons he inculcates were properly and more generally studied. In this connection we cannot omit to call special attention to the importance which he attaches to auscultation. At page 681, he says: "When we apply the stethoscope over an ovarian tumour, we hear no sound. On auscultating a fibroid tumour, on the other hand, we rarely fail to discover, on one or other side, a bruit precisely resembling the sound heard on auscultation over the pregnant uterus. . . . It may be very faintly discernible in the sub-peritoneal variety, but in the interstitial and submucous varieties . . . the bruit may always be discovered on careful examination." The presence of the bruit distinguishes fibroid from ovarian tumours; and the absence of the sounds of the foetal heart helps to distinguish it from the gravid uterus.

In regard to the medical treatment of these tumours the author presents "the threefold object of endeavouring, first, to promote the absorption of the tumour; secondly, to mitigate the symptoms to which it gives rise; and thirdly, to maintain or elevate the general standard of the patient's health." We regret that experience has not confirmed the value of bromide of potassium as a discutient, which Sir James so highly extols, yet the indorsement of its utility by such high authority demands further trial before it can be entirely discarded. Every gynaecologist should satisfy himself, by a fair trial, in accordance with the precise directions laid down by the author.

Under the head of surgical treatment, he discusses calcification by use of galvanism, gastrotomy and excision, enucleation, and removal through the vagina, and removal of portions of the tumour, detailing with marked precision the relative advantages of each process, and pointing out the character of the cases to which either may be adapted.

Lectures XLVI. and XLVII. present a very complete, though condensed, summary of the author's views in regard to the varieties, localities, and treatment of uterine polypi. The concluding portion of Lecture XLVII. is devoted to a brief description of leucorrhœa, in which the author displays his usual originality of thought and great practical application of the resources of medical science.

Lecture XLVIII. is a brief and unsatisfactory discussion of chronic metritis of the fundus, body, and cervix of the uterus. Chronic metritis of the body and fundus is very improperly, we think, divided into three varieties: Perimetritis, Endometritis, and Parenchymatous Metritis. This generalization leads necessarily to confusion and indistinctness; but that the reader may have the benefit of the author's views, we quote as follows from pages 736 and 737.

"When inflammation is set up in the upper segment of the uterus, it seldom, probably never, affects one of the layers of the uterine walls singly; but it may be found originating and producing its most marked effects in one of these layers at a time in preference to the others." . . .

"When inflammation attacks the uterus, either in its serous covering or its mucous lining, it usually, also, invades to some extent the substance of its walls." In a vast majority of cases this is, perhaps, true, but if accepted in

its entirety it is simply nonsense to treat of perimetritis and endometritis as separate and distinct diseases from metritis.

Chronic metritis of the cervix is divided into the Catarrhal, Eruptive, Ulcerative, and the Hypertrophic, which is even more objectionable than the classification of the varieties of chronic metritis of the body and fundus, inasmuch as it necessarily implies that each variety is, to a greater or less extent, an affection of the parenchyma of the cervix.

The treatment of these affections, though containing many very valuable suggestions, falls far short of the requirements of the present day.

Lectures XLIX. and L., which conclude the series, are upon "Prolapsus Uteri" and "Retroversion of the Uterus." These are valuable as the opinions and practical conclusions of Sir James Simpson; and, at the time of their delivery were peculiarly valuable for their many original suggestions as to the proper treatment of these displacements; but, at this date, so many more recent authors have promulgated similar views, that they have lost much of their force, and experience has demonstrated the inutility, at least of one of his methods of treating retroversion and retroflexion. The intra-uterine stem pessary has been well nigh discarded, but it is due to Sir James to add that, in the concluding lectures, he has limited the class of cases to which it is applicable very much more than recent authors credit him with.

We, perhaps, ought not to omit calling attention to his distinction between Procidentia and Prolapsus Uteri. At page 752, in discussing the degrees of descent, he says: "In the first the descent is incomplete, and we have a case of procidentia uteri, the organ falling down so far that it has come to rest on the floor of the pelvis, and is ready to protrude through the vulva. In the second the disease is complete; the uterus has slipped over the edge of the perineum, is precipitated quite out of the pelvis, and has carried with it the upper extremity of the vaginal canal—the case is one of prolapsus uteri." Perhaps the editor and not Sir James is responsible for this transposition of terms.

The work, as now presented, is a very full and valuable treatise on Diseases of Women, containing, as it does, all the clinical lectures of the lamented Simpson, who, for a score or more of his later years, was regarded as pre-eminent in his special department of medicine, and whose teachings will be held in high esteem by those who live after him.

S. C. B.

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ART. XXXII.—*The Anatomy and Development of Rodent Ulcer.* A Boylston Medical Prize Essay for 1872. By J. COLLINS WARREN, M.D. 8vo. pp. 66. Boston: Little, Brown & Co., 1872.

THIS slender and elegantly printed volume is one of much interest, and shows that the author worthily sustains the high reputation which has always pertained to the name of WARREN in American surgery. By careful microscopic study of several cases of rodent ulcer, observed in the wards of the Massachusetts General Hospital under the care of Dr. Hodges and of Dr. White, the author has satisfied himself of the correctness of the view adopted by Billroth and by the late Mr. C. H. Moore, that the disease in question is a true cancer, though the mildest and least malignant form of the affection with which the surgeon is called upon to deal.

We do not intend to follow Dr. Warren in his minute account of the morbid anatomy of the various specimens examined, and indeed without the aid of the excellent plates which accompany the essay, we should find it difficult to give our readers a distinct idea of the several points insisted upon: suffice it to say, that, in summing up his observations as to the *anatomy* of rodent ulcer, the author maintains that the existence of two forms of cutaneous cancer must be admitted, viz., (1) a large-celled or infiltrating variety—of which the ordinary epithelioma or epithelial cancer of the lower lip may be taken as a type—decidedly malignant both in regard to its rapid growth, and to its liability to infect the neighbouring lymphatic glands as well as more distant parts, and (2) a small-celled variety, which appears as a flat or superficial form of cancer, typified by the rodent ulcer, and characterized by a slow growth and by a very exceptional implication of distant parts.

With regard to the second part of his subject, the *development* of rodent ulcer, Dr. Warren says:—

“In summing up then the result of these observations, we find that in certain cases,

“1. The formation of the cancer-cells is preceded by an escape of the white blood corpuscles through the walls of the vessels, and an accumulation of similar cells in the adjoining lymphatic canals.

“2. That this is followed by an apparent transformation of these cells into cells resembling strongly the epithelium of the rete Malpighii.

“3. That the epithelium of the parts affected does not appear to take an active part in the process, but may exert a certain influence on the character of the formation taking place.

“4. That the cancer-cells lie in the lymphatic spaces of the connective tissue, and do not invade, to any appreciable extent, the lymphatic vessels. . . .

“The cancer-cells, when once formed, appear to possess little power to multiply themselves by further proliferation. The masses of cancer-cells certainly do not show any signs of such activity. We find no evidences of an active cell proliferation, and consequently no active outgrowth into the neighbouring tissue. . . . In Rodent Ulcer, the cells rarely extend a line or two below the surface of the ulcer, and beyond its edges. The lymphatic vessels, as we have seen, are invaded at the most to a very limited extent, while in other forms of cancer the cells penetrate freely into the lymphatic net-work about them, and by repeated multiplication are enabled to continue their progress until conditions are arrived at most favourable for the infection of the adjacent glands. The low formative power of the elements, the absence of power to multiply themselves to any extent, when once formed, and their extremely short-lived character, seem to afford the most satisfactory explanation of the inability of the disease to affect distant parts.”

The only portion of Dr. Warren's excellent essay which seems to us defective is his introductory sketch of the literature of the subject: we should be sorry to think with the author that the disease known as rodent ulcer is “still but very imperfectly understood by English and American pathologists,” for, though undoubtedly much diversity of opinion has prevailed and yet prevails with regard to the microscopic appearances which characterize the affection, we know of almost no disease so rare as rodent ulcer, the clinical features of which have been so often and so distinctly laid before the profession, and concerning the treatment of which such unanimity of feeling prevails. Rodent ulcer has not indeed found a place in the majority of surgical text-books,<sup>1</sup> but

<sup>1</sup> Dr. Warren's reference to Holmes's “System of Surgery,” appears to have been made to the *first* edition of that work; in the *second* edition we find rodent ulcer discussed in no less than four different places, and by as many writers: we may perhaps be permitted to mention also that, in our own work on the “Princi-

we should be loath to believe that the reading of either English or American pathologists was limited to works of that character: besides Dr. Arthur Jacob's original and in many respects still unsurpassed paper (which by some oversight is not even mentioned by Dr. Warren) in the fourth volume of the Dublin Hospital Reports, more or less full accounts of the affection have been published in our own language by such well-known writers as Cæsar Hawkins, Lawrence, Mackenzie, Moore, M. H. Collis, Paget, Hutchinson, J. Mason Warren, Durham, Holmes, Hulke, Arnott, and Soelberg Wells, so that, if the ignorance to which Dr. Warren alludes actually prevails, it is certainly inexcusable.

J. A., JR.

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ART. XXXIII.—*Contribution à l'Étude des Tumeurs du Testicule*, par le Dr. G. NEPVEU, Ancien Interne des Hôpitaux de Paris, Membre de la Société Anatomique. Avec deux planches chromolithographiées, in 8vo. pp. 60, Paris: Adrien Delahaye, 1872.

*Contribution to the Study of Tumours of the Testicle.* By Dr. G. NEPVEU.

In this slender volume the author, who is rapidly becoming well known as a frequent and able contributor to the *Archives Générales de Médecine*, gives an account of nine cases of tumour of the testicle, and adds full descriptions of the naked-eye and microscopic appearances in each case, the whole being accompanied by judicious remarks upon the morbid anatomy and pathology of the various growths described. Dr. Nepveu's nine cases are distributed as follows: one of "pearly tumour" (classed by Paget and others as a variety of the sebaceous cyst), one of epithelioma, three of encephaloid cancer, one of scirrhus, two of tuberculous disease, and one of fibroid alteration of the corpus Highmorianum. In his general summary, the author maintains that—

- “1. ‘Testicular pearls’ originate from the testicular epithelium.
- “2. Canalicular and cystic pavement-like epithelioma may coexist with fasciculate sarcoma and cartilaginous nodules.
- “3. In spite of Rindfleisch’s assertion, scirrhus may occur in the testicle.
- “4. Cancer of the testicle attacks the testicular epithelium; at first and especially that of the canaliculi, then that of the lymphatics, and ultimately that of the bloodvessels.
- “5. Tubercle of the testicle occurs under the three forms of *gray granulation*, which is rare, admitted by Virchow, but rejected by Rindfleisch, *fibrous tubercle*, and *disseminated tuberculosis*. The two first forms may be isolated, or may be joined together in large tuberculous masses.”

The plates which accompany Dr. Nepveu’s cases are well executed, and doubtless afford accurate representations of the morbid appearances described.

J. A., JR.

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ART. XXXIV.—*The Influence of Vaccination, Age, Sex, and Occupation on the Mortality in Smallpox.* By ROBERT GRIEVE, M.D., Medical Superintendent of the Hampstead Hospital. (Read before the Epidemiological Society, 10th April, 1872.) 12mo. pp. 12. London: J. & A. Churchill, 1872.

In this little pamphlet Dr. Grieve gives the statistics of a large number of cases of smallpox treated in the Hampstead Hospital during the recent epidemic; and Practice of Surgery,” we have given a short account of the affection in question, and have referred to the various views entertained as to its pathology.

confining himself to the results of his own experience. From these statistics, his object is to show the influence exercised by vaccination, age, sex, and occupation, on the rate of mortality in smallpox.

That the mortality amongst those suffering from smallpox, who have been previously subjected to *vaccination*, is very much less than it is amongst those who are not so protected, is, at the present, probably sufficiently established; still, additional figures are not without their value. Of 6221 patients admitted, 1248 were without any marks of vaccination; of these, 638, or 51.12 per cent., died; whilst among the 4973 who showed proofs of being vaccinated, in only 567 instances did death occur, a mortality of 11.40. "The general percentage of mortality is 19.36, which is above the average of late epidemics. This has been ascribed by Mr. Marson, whose lengthened experience entitles him to speak on this point with authority—not only to the form of the disease generally, being more severe, but also to the large proportion of cases of the malignant and hemorrhagic type which have come under treatment." It is possible for individuals to be vaccinated, and yet not to obtain all the protection anticipated. The vaccination may be inefficiently performed, the matter employed may be inefficient in quality or in the quantity inserted. As to quality, when there are different observers with possibly different standards, it is very difficult to express the results by figures. Thus, while Dr. G. believes firmly that the character of vaccine virus exercises an immense influence over the amount of protection it imparts, he has been unable to bring statistics to confirm his belief. With quantity there is not the same difficulty: there are the marks, they may be looked for and counted.

"In the 3555 cases in which the number of marks was noted, it was found that the percentage of mortality among patients showing *one* mark was 17.39; *two* marks, 12.17; *three* marks, 10.58; *four* marks, 8.38; *five and more* marks, 6.43: a scale in which the mortality is in inverse ratio to the number of vaccine scars present." "The practical deduction to be made from these numbers is, that the larger the number of places at which we vaccinate, the greater is the protection furnished." To obtain even a fair average of protection, Dr. G. believes, "that at least three cicatrices are required, but that something is gained by exceeding that number."

As the result of his investigations in respect to the period of incubation of smallpox, Dr. G. has arrived at the conclusion that in the great majority of cases, the variolous eruption shows itself on the 14th day after infection. Hence, vaccination, during the first three or four days of the period of incubation, will be useful—a reason for the vaccination of all the inmates of a house where smallpox has already appeared.

Of smallpox *after revaccination*, Dr. G. has not seen much, owing, he believes, to the rarity of its occurrence. Out of the 6221, in only 3 could any satisfactory proof of previous revaccination be discovered. Many of the patients said, on their admission, they had been, but on further investigation, it was found that while the operation had been performed, no after effects were produced, the operator assuring them that as they were thus not susceptible to revaccination, there was no fear of their taking smallpox.

"Our nurses and servants," remarks Dr. G., "in constant and close attendance on the smallpox patients, when protected by revaccination, do not take the disease, and in this respect the experience at the Hampstead Hospital coincides with that at the older Institution at Highgate." "I wish it were possible," he continues, "to bring home to the minds and belief of the general public my conviction regarding revaccination, namely, that it is a sure protection against smallpox. To insure this protection, revaccination, produc-

some local action, must have been performed after the individual had reached his 15th year."

The extremes of age are alike unfavourable in smallpox. Taking the unvaccinated class, amongst whom age is the chief modifying influence, we find the minimum mortality to be between the 10th and 20th years of age. Under 5, as many as 70.87 per cent. die, and 35.03 per cent. of those between 10 and 20. The percentage in those over 60, is so small as to possess but little value. Amongst the vaccinated the period of minimum mortality is also in those aged between 10 and 20 years, after that the increase in the percentage of deaths is proportionally greater than in the unvaccinated, thus rendering it probable that the protective power of vaccination becomes lessened by the efflux of time. Unvaccinated infants under one year of age rarely recovered. "It is worthy of note," says Dr. G., "that cases of smallpox of the hemorrhagic type, so common among adults during the recent epidemic, were seldom met with in children."

In respect to sex. More males than females were treated: namely, 3377 males, and 2844 females; of the former, 680, or 20.13 per cent., died, of the latter, 525, or 18.49 per cent.; showing thus a higher rate amongst males than females. This is the case both in the vaccinated and unvaccinated; but taking age in conjunction with sex, the lower rate of mortality is then, in females, limited, however, to adult life. Thus, of *males under 20*, and vaccinated, there were 1210, of whom 87, or 7.8 per cent., died. Of 491 unvaccinated males under 20, there died 251, or 51.12 per cent. Of 1103 vaccinated *females under 20* years, 79 died, or 7.16 per cent. Of 410 unvaccinated, 225, or 54.87 per cent., died. Amongst 1506 vaccinated *males over 20* years of age, 248, or 16.46 per cent., died; of 170 unvaccinated, 94, or 55.29 per cent., died. Of 1154 vaccinated *females aged over 20* years, 153, or 13.35 per cent., died. Of 177 unvaccinated, 68, or 38.41 per cent., died.

This difference is probably, in part, owing to the extra-wear and tear the male undergoes in his capacity of bread winner. Dr. G. is inclined to ascribe it mainly to the greater prevalence of irregular and dissipated habits among men than women. Nothing lessens the power to cope with smallpox more surely than a life of dissipation. The likelihood of an unprotected or an imperfectly vaccinated hard drinker recovering from an attack of genuine or modified smallpox is but slight.

By a table given by Dr. G., showing the amount of deaths that occurred in the patients ranged according to their different occupations, it will be seen that sedentary patients, contrary to what might have been expected, compare favourably with the others. The greatest mortality in smallpox occurs among individuals engaged in occupations whose workmen are confessedly most prone to intemperance, or are exposed to continuous high temperature. D. F. C.

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ART. XXXV.—*Ueber ein Verfahren, die Einwirkung electricischer Ströme auf die Sogenannten Binnenmuskeln des Ohres zu untersuchen*, von Dr. LÖWENBERG, in Paris.

*A Method of Examining the Action of Electric Currents upon the Muscles of the Middle Ear*, by Dr. LÖWENBERG, of Paris. From the "Monatsschrift für Ohrenheilkunde." No. 8. 1872.

THE author of this little work says: Since the labor of Brenner, of St. Petersburg, gave us the constant electric current as a means of treatment in dis-

eases of the ear, numerous questions have arisen in the extended observations which the subject has claimed. Foremost among the recent controversies on this point, is the question whether the constant electric current acts upon the muscles of the middle ear, the tensor tympani, and the stapedius—and, if so, what are the effects? He says, very truly, that theoretical discussion on this point is useless, and that no method, excepting one which affords ocular proof that these muscles do contract under the application of the constant stream, will be of value.

Löwenberg, in the years 1864 and 1865, devised a method of producing contractions of the muscles of the tympanum by the application of electricity, and of rendering them visible by the use of the manometer.

A manometer consists of two parts, as is well known; the first being of cork or gutta-percha, which is made to fit hermetically into the meatus externus; and, secondly, of a glass tube of capillary calibre, which fits hermetically into the part made of cork or gutta-percha, and shows by the altered altitude of a drop of coloured fluid in it, the fluctuations of the column of water in the meatus.

For the special purpose which Löwenberg had in view, a third part entered into the composition of the manometer. He passed a piece of copper wire through the gutta-percha stopper, the inner end of the wire extending into the fluid of the meatus, while the outer end is fastened to the connecting wire of the battery. By this means an electric current may be passed through the meatus while the manometer is in situ, and applied to the tympanum and its muscles, the circuit being completed by placing the other pole anywhere upon the surface of the body, or in the Eustachian tube.

If, during the passage of the electric current, only *one* of the muscles of the tympanum contracts, and an alteration in the curvature of the membrana tympani is produced, the fluid in the meatus externus must naturally undergo an alteration in its position, which will be communicated to the column of water in the manometer, which must fall if the membrana tympani is retracted, or rise if it is pushed outward. This method is just as applicable in the use of an induced current as it is in that of the constant stream.

The author at this point alludes to the recent discussion between Poorten and Wreden, whether a retraction of the membrana tympani occurs, in consequence of the action of an electric current upon the middle ear, or not. Wreden contends that such a retraction does occur, which is denied by Poorten. The question may, perhaps, be decided by the use of Löwenberg's manometer. If the membrana tympani is retracted, the manometer, properly adjusted, must indicate it, and such a retraction, it is fair to presume, must be caused by the contraction of the muscle which regulates the movements of the hammer and the membrana tympani, viz., the tensor tympani rather than the stapedius muscle. Such a contraction may take place and be followed by a retraction of the membrana tympani, and still the acoustic nerve may be *directly* affected by the current of electricity, and not indirectly by the contraction of the tensor tympani muscle, and a consequent inward movement of the chain of ossicles; a question which may be decided, at least in special cases, as Löwenberg remarks in his brochure under consideration, by the application of the electric current to an ear where the ossicles have been destroyed, an experiment in which the interest would be enhanced were the other ear of the individual perfectly sound, so far at least as the integrity of the chain of ossicles and the tensor tympani muscle is concerned.

As a conclusion to this notice of "Löwenberg's method," it is interesting as  
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well as fitting to consider the part that Brenner and others have acted in the labours pertaining to electro-otiatrics.

Brenner is the first man who has endeavoured to establish a rational system of electro-otiatrics, and in 1868 published his famous work on the subject, entitled, "Untersuchungen und Beobachtungen, über die Wirkung electrischer Ströme auf das Gehörorgan im gesunden und kranken Zustande." Leipzig, 1868.

From this book we learn that among the earliest investigators, Volta made a single experiment to discover whether sound sensations could be produced by the galvanic current—obtaining an affirmative result—but failed to enter very far upon this kind of investigation.

He was followed by Ritter, who established all that Volta had described, and added a description of the note and its pitch, which is produced by an electric current passing through the organ of hearing; showing that this note became higher when the copper pole was in contact with the ear, and lower when the zinc pole was in the ear.

Grapengiesser was the next observer in this field, about 1801, but after his observation nothing was done till Paul Erman, in 1812, tried to prove that it is impossible to produce a true galvanic reaction of the acoustic nerve. From this time on through forty years, no independent and important investigations were instituted in this department of science, and men like E. H. Weber and Ludwig only mentioned the labours of previous observers, especially those of Ritter, in order to condemn their results, until a living authority, no less than Adolph Fick, says, in his *Lehrbuch der Physiologie des Menschen*, Zweite Auflage, 1858, "it is still undecided whether we are able to produce a specific reaction of the acoustic nerve, or even any reaction whatever in it, by the application of an external excitant, whether it is of a chemical, thermic, or electric nature." Thus the history of investigation into the nature of the excitation of the acoustic nerve, extending over seventy years previous to the time of Brenner, closes with this strange remark: "It is not yet determined whether, nor is it known how, the nerve of hearing reacts under the influence of the electric current." (Brenner, *op. cit.*, p. 45.) With Brenner, however, a new era in this department of science began, and in the present day the so-called normal formula established by him, for expressing the electric reaction of the acoustic nerve, is used as the standard of our knowledge on this point.

His doctrines have been accepted and put into practice by Hagen, of Leipsic, and Erb, of Heidelberg, both of whom have contributed largely to the literature of the subject. Benedict, of Vienna, has attacked all that Brenner has done, and denied the truth of most of it.

It would seem, however, to one who has looked into the subject of the application of the constant electric current to the ear, and the consequent reaction of acoustic nerve, that Brenner and his assiduous co-labourers have the best of it, because they are nearest the right; Benedict's statements are mostly made dogmatically, and give one the impression of perhaps originating in a desire for opposition and controversy. He surely shows no array of experiments equal to those on the other side, nor can he produce an equal number of controlling experiments performed by others.

Both parties claim to have produced a pure electric reaction of the acoustic nerve, but are totally at variance as to its nature; in fact are nearly diametrically opposed as to the mode of producing it, as well as its manifestation. Brenner and his party believe the reaction to be produced by a direct influence of the stream of electricity upon the acoustic nerve, whereas Benedict asserts

that the acoustic manifestations, when they occur, are reflex in their nature, a point which Erb has shown to be untenable.

Benedict's reflex theory has been based on suppositions of irritation of the trigeminus, vaso-motor nerves, and other parts entering into the structure of the ear, which has given rise to many diverse ramifications of experiment, among which we may place that of Wreden, alluded to above.

We can but express our hope that Löwenberg's suggestions may be listened to, and aid in the elucidation of the facts and the vindication of the truth.

C. H. B.

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ART. XXXVI.—*New Treatment of Venereal Diseases and of Ulcerative Syphilitic Affections by Iodoform.* Translated from the French of Dr. A. A. IZARD, by HOWARD F. DAMON, M.D. Small 8vo. pp. 73. Boston: James Campbell, 1872.

WE have examined this little book with a good deal of interest and pleasure, and gladly recommend it to the attention of our readers. So far as we can judge, Dr. Izard appears to be a very intelligent, and, which perhaps is rarer, a perfectly candid observer; he claims no more for his favorite remedy than he seems able to justify by his clinical records, and, by wisely not attempting to prove too much, predisposes his readers to accept his conclusions, which indeed appear to be perfectly well founded.

Although both Dr. Izard and his translator have used iodoform internally, it is as a topical remedy only that it is considered in the volume now under consideration, the preparations recommended in addition to the drug in substance (in the form of a powder), being an ointment, and a solution in glycerin and alcohol (iodoform two or three parts, glycerin thirty parts, alcohol ten parts). The author's conclusions, which we repeat seem to us to be fairly sustained by the evidence adduced, are expressed in the following sentences:—

“1st. That iodoform is a therapeutic agent producing more certainly and more promptly than all the others ordinarily employed the cicatrization of ulcerative syphilitids [*sic*] in general, under whatever form they present themselves.

“2d. That in the treatment of soft chancre, iodoform is in some sort a specific by the promptness with which it produces cicatrization without pain.

“3d. That in the treatment of simple or virulent buboes (non-syphilitic), iodoform can be employed in the form of an ointment, as a resolvent, during the early stage, with more success than the blister and tincture of iodine; during the period which succeeds to the opening of the bubo, no other medicament can be compared with it for the rapidity with which it brings about the cure.

“4th. In all the preceding cases, when the suppuration is abundant, it is preferable to commence the treatment by the solution of iodoform in glycerin and alcohol; iodoform in powder ought to be employed in the second place.

“5th. Iodoform acts not only as a topical agent, but still further as a local anaesthetic. The rapid cicatrization which takes place is due, 1st, to the simplicity of the dressing which does not irritate the diseased parts; 2d, to the absorption of the secretions by the iodoform powder; 3d, to the antiseptic properties of the medicament, above all, when it is dissolved in alcohol and glycerin; 4th, to the presence of iodine which acts favorably on all venereal ulcerations in general.

“6th. Iodoform appears to us to be completely incapable of arresting the progress of phagedenism.

“7th. The employment of iodoform in cases of syphilitic affections should never dispense with internal treatment.”

Barring a little stiffness and a few awkward Gallicisms, Dr. Damon's translation is, upon the whole, pretty well done; as a matter of taste we should prefer to see upon the title page the *author's* name in not so very much smaller type than the *translator's*.

J. A., JR.

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ART. XXXVII.—*On Spurious, Feigned, and Concealed Pregnancy.* By THOMAS MORE MADDEN, M.D., M.R.I.A., etc. 12mo. pp. 17. Dublin, 1872.

SPURIOUS pregnancy embraces those cases in which so many of the signs of pregnancy are present as to easily deceive the inexperienced female, especially when the desire for maternity is predominant with her. In some rare cases, in fact, the diagnosis is so obscure, at first, as to deceive, for a time, even the experienced obstetrician.

The causes of spurious pregnancy are very numerous. Among these may be enumerated "change of life," as it is popularly termed, dyspepsia, dropsy, obesity, and a variety of others. Two of the most interesting of the causes are molar pregnancy and uterine hydatidiform disease. Pregnancy may also be simulated by cystic degeneration of an ovum. In all the instances of uterine hydatidiform and cystic disease which have come under the notice of Dr. M., the patients supposed themselves pregnant until they were undeceived by the expulsion of the hydatidiform mass from the uterus. Pseudo-pregnancy may also be caused by ascites, by fibrous tumours of the womb, by physometra, by hysteria, and some other morbid conditions of the uterus. Ovarian tumour may be confounded with pregnancy, or may exist with it. The diagnosis of such cases is, in the opinion of Dr. M., comparatively easy. It may be arrived at by palpation of the abdomen, and by the state of the os and cervix uteri, which latter in ovarian disease is long and low down, while the uterus can be distinguished as a separate body from the ovarian tumour.

The histories of nine cases are given in illustration of the views advanced by Dr. M. on the subject of spurious pregnancy.

Little need be said on the subject of *feigned pregnancy* which may be resorted to as an agent of fraud, to extort money, to excite pity, or to escape or defer the punishment of crime. "I would desire," says Dr. M., "to call attention to the fact that the practice of concealing pregnancy, with the intention of committing child-murder, or of producing abortion, especially the latter, it is to be feared is becoming, of late years, more common in Dublin than was formerly the case." "Illegitimate births are more frequent in Ireland now than formerly. But this increased proportion of illegitimate births gives by no means a full measure of the extent to which the evil just referred to has arrived of late years—with the deluge of cheap *bad* literature which is poured into this country, and which circulates chiefly among the class that constitute the majority of the unmarried patients of the lying-in hospitals, a still greater evil has become familiarized to the oftentimes badly reared and sorely tempted victims of seduction, who too often seek what they *falsely* conceive a legitimate mode of escaping the penalty of their folly." Hence it now becomes more than ever necessary for every medical practitioner to be prepared to meet with cases of concealed pregnancy and attempted abortion under various disguises, and thus be able to detect the intention and to frustrate the crime. D. F. C.

ART. XXXVIII.—*Remarks on Strictures of the Urethra of Extreme Calibre, with Cases, and a Description of New Instruments for their Treatment.* By F. N. OTIS, M.D., Clinical Professor of Venereal Diseases in the College of Physicians and Surgeons, New York, etc. 8vo. pp. 25. New York: D. Appleton & Co., 1872.

IN this pamphlet, which is a reprint from the pages of the New York Medical Journal, Prof. Otis justly lays stress upon the evil consequences which may result from slight strictures, and properly points out that an instrument which may suffice very well for the treatment of a close stricture, or of a stricture in a small urethra, may yet be utterly unfitted for employment in cases in which the passage is naturally large, and the contraction but moderate. For dealing with such cases, the author has devised a special instrument, which he calls the “dilating urethrotome,” by which the stricture is first stretched and rendered tense, and subsequently divided by means of a concealed blade which can be projected at the will of the operator. For the treatment of very tight strictures, Prof. Otis employs a modification of Sir H. Thompson’s probe-pointed catheter (here by a slip of the pen called Mr. Holt’s), the stylet being made to pass to the end of the instrument, the catheter itself being slightly conical in shape, so as to effect dilatation as it is pushed onwards, and the flow of urine being assisted after the introduction of the instrument by the adaptation of a small syringe to its projecting extremity.

J. A., JR.

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ART. XXXIX.—*A System of Oral Surgery: being a Consideration of the Diseases and Surgery of the Mouth, Jaws, and Associate Parts.* By JAMES E. GARRETSON, M.D., D.D.S., Oral Surgeon to the Medical Department of the University of Pennsylvania, etc. Illustrated with numerous steel plates and wood-cuts. 8vo. pp. 1091. Philadelphia: J. B. Lippincott & Co., 1873.

THE chief object of the author seems to have been to ascertain how big a book he could possibly make on the somewhat limited subject which he has chosen for discussion. He has, accordingly, bestowed all his tediousness upon the reader, by giving in minute detail the histories of numerous very commonplace cases, adding a brief record of his views upon the treatment of such diverse affections as tetanus, urethral stricture, typhoid fever, gonorrhœa, and cholera infantum, and further swelling the bulk of his volume by frequent and lengthy extracts—one occupies more than twenty pages—taken bodily, sometimes with and sometimes without acknowledgment, from all sorts of writers, good, bad, and indifferent; indeed there appears to be scarcely any modern surgical author, except Prof. Gross (whose name is conspicuous by its absence), who has not been forced to contribute a quota to this “System of Oral Surgery.”

Many of these extracts are, no doubt, very good reading; and we do not mean to say that the author has added absolutely nothing of value. In a volume of nearly eleven hundred pages, it would be strange if all were bad, and it would be unjust to deny that we have read with some interest a few of the clinical histories, and the chapter on Obturators. But, as a whole, Dr. Garretson’s production forms one of the most objectionable specimens of book-making

which it has ever been our fortune to meet with. The statements of facts, or of what are given as such, are in many instances laboriously inaccurate, the pathology is consistently superannuated, and the style ungrammatical, turgid, and bombastic ; the illustrations, moreover, are, with comparatively few exceptions, taken from the catalogues of manufacturers of dental instruments, or from familiar text-books (almost invariably without acknowledgment), while the whole is set off with a few of those famous steel plates, which were originally engraved ("after Bernard and Huette," etc.) for Prof. H. H. Smith's *Surgery*, and which recently seem to have been served up *à toutes sauces*, in every work in which they could possibly be inserted.

We have examined Dr. Garretson's volume with a good deal of care—more, perhaps, than it merits—and have marked between three and four score passages which, if quoted, would amply sustain the justice of our criticisms ; but we shall not weary our readers by going through the work in detail and minutely pointing out its numerous defects. To the author, as he reveals himself in this book, may be justly applied the words, slightly altered from the Johnsonian original :—

“ Qui nullum fere chirurgiae locum  
Non tetigit,  
Nullum tetigit, sed quod non ornavit.”

J. A., JR.

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ART. XL.—*A Manual of Chemical Physiology, including its points of contact with Pathology.* By J. L. W. THUDICHUM, M.D. 8vo. pp. vii., 195. New York: William Wood & Co., 1872.

THE eminent author of this work states in his preface that "it is a complete but concise epitome of the branch of science commonly termed Physiological or Animal Chemistry, and will be found to contain its latest acquisitions."

The first of the two parts of which the work consists, an essay on Chemical Physiology, presents in a condensed form those theories at present received, and the observations from which they have been deduced, and though this condensation, and the author's somewhat difficult style, make the book what may be termed a "hard" one, it will undoubtedly prove a valuable acquisition to the resources of the student of animal chemistry.

The second part, termed the "Analytical Guide," is a series of concise directions for use in the laboratory. The mode of isolating each substance, of recognizing it when obtained, and, whenever possible, of preparing the same substance in a pure state for purposes of comparison, is clearly and accurately set down. For the satisfactory use of much of this part, prior experience in chemical manipulation is very necessary ; but there is also much which can be readily carried out by any one who possesses a little common sense, a few general principles, and a piece or two of simple apparatus.

It is to be regretted that the real value of this work can be practically recognized by so few in this country ; but we hope that with increased facilities for the study of such matters in laboratories, the student of medicine may cease to regard the hours spent in physiological and chemical lecture-rooms merely as means to obtaining a degree, and may learn to feel that what is taught there is to have an important practical bearing upon his future as pathologist and therapeutist, or, in other words, as a good practising physician. As a handbook in such laboratories, this guide will be found very valuable. H. B. H.

ART. XLI.—*A Manual of Qualitative Analysis.* By ROBERT GALLOWAY, F.C.S. From the fifth rewritten and enlarged London edition, with illustrations. 12mo. pp. 402. Philadelphia: H. C. Lea, 1872.

THAT this work has reached its fifth edition, shows the estimation in which it is held by those for whose use it was intended, and in its enlarged and modified form it is well calculated to familiarize the student with the theories and new chemical notation, while it indoctrinates him in the facts of chemical reaction and research. The special plan of the work in the part devoted to analysis is to combine the principles embraced in each portion with the instructions as to the methods by which the objects of the research are to be effected. To the student who pursues his course without an instructor this has the advantage of compelling attention, not only to the means of research, but also to the reasons for each particular method being strictly followed, instead of allowing him to neglect the rational portions, when from previous education of the mental powers, he does not recognize this necessity and tends to fall in routine practice.

The work is divided into three parts: inorganic, organic, and operative, the last being much the shortest. The position of the third part is out of the usual course and seems misplaced, the student being required in previous portions to perform operations for which no previous instruction has been given, and to use reagents of which he has no information—upon the reliability of which for the purposes directed he can form no opinion.

The first part contains the mode of research for the bases first and then the acids, with the reactions characteristic of each, with tables of comparison in which the narration of the characters of the various bodies are placed in regular order alongside of each other, so that their similarity or differences and the knowledge to be gained from the characters of their reaction may be more readily perceived. Without preliminary remarks on the bases or reactions on which the group is founded, they are introduced by an enumeration of the general properties of each group, and the actions of the reagents to be employed, which are again repeated in the tables of comparison before mentioned; this is followed by directions for the separation and detection of the several members of the group and the precautions which require attention in operating with members of the particular group under examination; the properties of the metals and their compounds are next passed in review, and remarks appended on individual members of the group with reference to special or additional tests. Each group has appended a series of exercises in the form of questions, which are so framed as to test the knowledge of the student and the attention which has been applied to the explanations and their accurate comprehension.

The acids are divided into inorganic and organic, and enumerated separately with the reactions they produce with reagents. They are next thrown into groups, the same number, four, for both divisions, the discriminating behaviour with reagents being first stated, and then succeeded by characteristic tests for each member of the group. Preparation of the substances for examination, with instructions for preliminary examination of liquids and of solids by heat applied in different ways, without or with adjuvants, and whether fixed or volatile and capable of forming films, are next considered; and this portion is concluded by instructions as to effecting the solution of solids, so as to adapt them for analysis, arranged under three divisions, in which considerable additions have been made to the observations contained in former editions of this work.

Part the second is occupied with analysis of organic substances not previously noticed, divided into groups—albuminoid, saccharine, basic, acid, etc.—

under which the properties of the substances included in each are considered with their reactions. Methods of analyzing the blood, urine, and other animal secretions, of ascertaining the character and presence of the saccharine group, and of the principal organic alkalies, are given with accuracy and sufficiently in detail for identification. The conclusion is occupied with the detection of the poisonous alkaloids in organic mixtures.

The third part contains the usual preparatory manipulations of a mechanical and chemical character, together with methods of preliminary testing, apparatus, and instructions concerning the purity and strength of the test solutions with which the experiments detailed in the previous portions of the work are to be performed. The appendix contains instructions on the treatment of residues of the more valuable metals—silver, gold, and platinum—so as to utilize what would be otherwise waste products.

R. E. B.

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ART. XLII.—*Annual Report of the Surgeon-General United States Army. 1872.*

THIS report gives the average strength of the army during the fiscal year ending June 30th, 1872, as 24,101 white and 2494 coloured troops.

Among the white troops 47,575 were reported on the sick list, being 1974 per 1000 of mean strength, of which number 1671 were on the sick list from disease, and 7310 for wounds, accidents, and injuries. The total number of deaths was 367, of which 268 were from disease, and 99 from wounds, injuries, and accidents. Discharged on "Surgeon's certificate of disability," 846.

Among the coloured troops the total number of cases was 3514, or 1409 per 1000 of mean strength, of which number 2938 were cases of disease, and 576 were wounds, accidents, and injuries. The number of deaths was 54, of which 44 were from disease, and 10 from wounds and injuries. The number of discharges on "Surgeon's certificate of disability" was 76.

The first part of the Medical and Surgical History of the War is, we are pleased to learn, in a state of forwardness, and awaits the action of Congress for its distribution. It is to be hoped that early action will be taken in this matter.

The library of the Surgeon-General's office now contains 19,000 volumes and 7000 pamphlets conveniently arranged in the fire-proof building of the Army Medical Museum, and open to the public under regulations the same as those of the Congressional Library.

There are at present 59 vacancies in the medical corps, and the Surgeon General says: "My previous reports have called your attention to the large number of vacancies existing in the Medical Corps, and the injury to it, and the service, resulting from the prohibition of appointments and promotions. It would require many years to fill the vacancies now existing, as the number of successful candidates rarely exceeds eight or ten in any one year. This is not the greatest evil, for many of the best of our medical officers, having the advantage of the large experience of the late war, disheartened by the faint prospect of advancement, are resigning; and numbers of most desirable candidates, after waiting years for examination, have established themselves in civil practice."

It is by no means creditable to the government that so meritorious and important a class of officers as the Army Surgeons should be so inadequately provided for that but little encouragement is given to them to continue in the service, or for thoroughly educated men to enter it.

QUARTERLY SUMMARY  
OF THE  
IMPROVEMENTS AND DISCOVERIES  
IN THE  
MEDICAL SCIENCES.

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ANATOMY AND PHYSIOLOGY.

1. *Glycogenesis.*—The late Nos. of the *Revue Scientifique* contain a *résumé* of a very interesting course of lectures “On the Phenomena of Life common to Animals and Plants,” delivered by M. Claude Bernard at the Muséum d’Histoire Naturelle de Paris. Notwithstanding their somewhat general title, these lectures are almost entirely devoted to the subject of Glycogenesis, the mystery of which has been so greatly elucidated by M. Bernard himself. The first lectures were occupied in describing the various forms of sugar, the tests indicating the presence of glycose, and the mode in which the quantity of that substance present in any fluid may be estimated. He himself always employs Barreswil and Fehling’s fluids; but observes that the aldehydes, uric acid, leucin, hypoxanthin, mucus, cellulose, tannin, chloroform, and chloral, all act in reducing copper in the presence of strong alkalies like glycose, and consequently their absence must be ascertained before any conclusions can be drawn in regard to the amount of glycose in any fluid. He draws with a master hand an outline of the successive steps by which our present knowledge has been attained: how the sugar shown to exist in the blood was originally believed to be entirely derived from without; how by feeding a dog for weeks exclusively on lean meat it was concluded that it must be found within the economy; how by comparative analyses of portal and hépatic venous blood the liver was shown to play an important part in the process; and how by the demonstration of sugar in water transmitted through the liver after the vessels had been thoroughly cleared of blood that organ was proved to possess, not a mere converting power on some saccharine compound contained in the blood, but the capability of producing an amyloid substance, which, under the influence of some ferment—such as that produced by the pancreas—is susceptible of conversion into glycose, and is thus fitted for the nutrition of the body. Further research showed, as all the world now knows, that this substance was insoluble, and M. Claude Bernard applied the name of “glycogen” to it. In his eleventh lecture he criticises Dr. Pavý’s views, and maintains, in opposition to that experimenter, that the formation of sugar is not a post-mortem change, but a function of the liver, the sugar during life being instantaneously carried off by the blood, though accumulating in the organ after death. The ready passage of the saccharine substance into the blood is, he points out, materially facilitated by the peculiar relations of the hepatic veins to the hepatic cells, and by the action of the muscular coats of the walls of those veins. The nerves of the liver come from three sources: the sympathetic, the pneumogastric, and the phrenic; the branches of the latter supplying the muscular coats of the veins. And M. Bernard tells how he was led, from the analogy of salivation being

induced by pricking the root of the fifth, to try the effects of puncture of the fourth, ventricle, though it was by a mere accident that he discovered its action, the first animal experimented on being rendered highly diabetic, though no effects were produced in the following six or seven. The increased production of sugar in this case M. Bernard attributes partly to an increase in the activity of the circulation, and partly to the direct action of the sympathetic system on the hepatic tissue.

As regards embryonic life, glycogen appears at a very early period in the embryo and its membranes: sometimes, as in the Rodents, existing between the maternal and foetal portions of the membrane; sometimes, as in the Ruminants, being found on the internal surface of the amniotic membrane. Towards the close of intra-uterine life it diminishes in the membrane and accumulates in the foetus. In the bird's egg sugar exists in notable quantity, and is contained in the white: if fecundation do not occur, it rapidly disappears; but if impregnation is effected, the vitellus quickly becomes charged with glycogen—the several tissues, with the exception of the muscles, becoming charged with it towards the close of incubation.

Amongst the invertebrata glycogen is widely distributed; and M. Bernard shows the fact, interesting to gourmands, that oysters, crabs, lobsters, and fish, when in prime condition for eating, contain abundance of glycogen; whilst, when out of condition, as when moulting (in the case of crabs), or when allowed slowly to die by asphyxia, the glycogen is entirely used up.

In giving his final conclusions, M. Bernard states that he has been led to regard glycose ( $C_{12}H_{12}O_{12}$ ) as the pivot on which the whole subject of glycogeny turns. It is, he says, both the primitive substance and the final substance in a long series of ascending and descending changes, and it can undergo various progressive or retrogressive modifications. Neither starch nor cane-sugar is of the least value; but the glycose formed in the economy, if not required, can be stored up in the form of glycogen, which can again, when the wants of the system demand it, undergo ready conversion into glycose. The precise mode in which this last is applied in the process of nutrition is still a matter that requires investigation.

The whole subject of glycogenesis is a striking example of what may be done by patient "questioning of nature;" and there can be little doubt that subsequent researches conducted in the same spirit as those undertaken by this distinguished physiologist will hereafter furnish us with complete information of the part played by every kind of aliment, of the modifications each undergoes in the process of assimilation, the mode in which it is applied in the processes of nutrition, and, finally, the retrogressive changes it undergoes before being discharged from the body as effete and exhausted material.—*Lancet*, Nov. 23, 1872.

*2. Cutaneous Absorption.*—In the *Moniteur Scientifique* for September, M. PAPILLON gives a sketch of what has recently been done on this subject, from which we take the following summary. It has long been well known that liquid substances and essences are readily absorbed by the skin. The question as regards solids is more difficult, and has given rise to much discussion.

M. Roussin, of Val-de-Grâce, maintained some years ago that alkaline iodides could be absorbed by the skin if incorporated with fatty matters. From baths containing these salts he found no absorption, but if the skin was rubbed with a pomatum containing them, iodine was afterwards found in the urine. A dry shirt, which had previously been dipped in a solution of iodide of potassium, occasioned absorption in the wearer; but M. Roussin explained this by saying that a pomatum of iodide was really formed with the fatty matters of the skin.

M. Rabuteau vigorously refuted these conclusions. He pointed out that in both cases, of the iodised pomatum and of the shirt, iodine was set at liberty. The salt was decomposed by ozone and by the acids of the perspiration, and iodine was absorbed in the state of vapour. The proof that fatty matters had no part in the phenomenon was, that, if the pomatum was prepared with bromides, which are less easily decomposed than iodides, there was no absorption,

no bromine found in the urine. Further, M. Rabuteau found no trace of iodine in the excreta, after remaining more than an hour in a bath containing 100 to 150 grammes of iodide of potassium; nor any absorption when a like experiment was made with bromide of potassium or sodium. But taking a bath in which he had put a solution containing 50 grammes of bromide of potassium and 5 grammes of iodine, he afterwards found iodine in the urine and saliva. The iodine, in a state of vapour, had been absorbed by the skin.

It is known, moreover, that many substances, very dangerous, but not volatile—such as bichloride of mercury, digitaline, etc.,—in a state of solution in a bath, have no hurtful action on those who take such baths. Doubtless an absorption commences in course of time, but it is very small, and only when the skin has become well impregnated, as the experiments of MM. Rabuteau, Reveil, Homolle, and others prove.

While a bath containing a considerable quantity of corrosive sublimate does not excite any action, simple friction with a mercurial unguent, on the other hand, produces absorption largely and readily, followed by the symptoms of hydrargyriasm, salivation, etc. This is due to the fact that while the sublimate is a fixed salt, metallic mercury is a volatile substance, giving off vapours at all temperatures. M. Merget's recent experiments have thrown new light on this extraordinary and subtle volatility of mercury, and furnish at the same time a very delicate means of detecting the smallest quantities of this metal. The subject is at present being prosecuted by an able Paris pharmacist, M. Byasson.

It seems, then, to be established that volatile substances are always absorbed, immediately and largely, by the external tegument, in the state of vapour; also, that fixed substances are absorbed very little, and only after a long time; but when, through decomposition or contact with the skin, they give rise to volatile substances, the latter are immediately absorbed.—*Lancet*, October 5, 1872.

3. *Effects on Secretion of Chemical Changes in the Blood.*—Evidence appears to be accumulating showing that some at least of the changes which take place in the various secretions of the body, under the influence of different drugs and remedial agents, are due to or associated with changes taking place in the blood-corpuses. The papers of MM. Binz and Geltowsky, which have lately appeared in the *Practitioner*, upon the action of quinia on the white corpuscles of the blood, supply important evidence upon this point; for they show that, when added in comparatively small proportions, quinia arrests the amœboid movements these corpuscles are capable of performing, and probably have a powerful influence in checking their development and multiplication in the lymphatic and vascular glands.

The experiments of M. Ritter, of which an abstract is given in a late number of the *Revue des Cours Scientifique*, point in the same direction. M. Ritter seeks to show what chemical modifications are produced in the different secretions, and especially in the urine, by the introduction into the system of certain agents known to have an action on the blood-globules. The substances with which he experimented were oxygen, nitrous oxide, carbonic oxide, the salts of antimony and arsenic, phosphorus, and the soda salts of the biliary acids.

It might naturally be anticipated that the inhalation of oxygen would increase the activity of the combustion of organic compounds, and consequently augment the proportion of the compounds representing the ultimate results of that combustion contained in the urine. But, as if to show the unsatisfactory character of mere theory in explaining vital processes, the experiments of M. Ritter demonstrate that the inhalation of oxygen renders the urine more acid and increases the proportion of ammoniacal salts; and though it increases also the proportion of urea, as compared with the uric acid, it diminishes the absolute amount of urea, as well as the total quantity of nitrogen discharged by that fluid. A possible explanation of this is that a portion of the urea may be decomposed in the blood into water, carbonic acid, and nitrogen, which are eliminated by the lungs; and this is in accordance with the statements of Allen

and Pepys, as well as those of Regnault and Reiset, that rather more nitrogen is eliminated in the expired air by an animal that has been made to breathe pure oxygen than under ordinary circumstances. The greater acidity of the urine appears to be due to the presence of an organic acid, that M. Ritter believes is lactic acid, which it is known may proceed from the oxidation of nitrogenised substances. Muscular activity acts in nearly the same manner as inhalation of oxygen.

Before determining the action of *protoxide of nitrogen* on the urine, M. Ritter investigated its influence on the blood, and shows that this gas is dissolved by the blood in larger quantity than by the serum destitute of globules, but that all the gases—even carbonic acid and hydrogen—displace it easily, whilst its oxidising power is certainly feeble. On respiration of protoxide of nitrogen, or drinking water charged with it, the quantity of carbonic acid expired diminishes; and in regard to the urine, the amount of urea, of uric acid, and of nitrogenised compounds generally, is augmented, but only in proportion to the amount of urine eliminated, which is itself increased. In fact, this gas produces diuresis.

The experiments of Claude Bernard have demonstrated that *oxide of carbon* deprives the blood-globules of their power of absorbing oxygen. On *à priori* grounds, therefore, the introduction of this gas into the system ought to check oxidation; and, in accordance with this, M. Ritter finds that after non-poisonous inhalations of carbonic oxide there is a constant diminution of urea and of the total nitrogen, and that there is especially a diminution in the proportion of urea to the total nitrogen.

The compounds of *antimony*, *arsenic*, and *phosphorus*, introduced into the body, occasion a diminution in the quantity of urea and of the total quantity of nitrogen; and, although there is an increase in the amount of uric acid, the urine is alkaline. The compounds of these metals or metalloids, taken in larger doses, cause disintegration of the globules and the formation of haemoglobin crystals. The urine then contains albumen, colouring matter, bile, etc. If less doses be given, an increase of fat and of cholesterine is found in the blood and throughout the system. They are thus shown to be deoxidising agents.

As regards the biliary acids, M. Ritter states that the taurocholate of soda, injected directly into the blood, has an action analogous to that of phosphorus, but less energetic.

So far as they go, these experiments are interesting, and open up a wide field of inquiry, which may perhaps enable us to explain the action of many drugs which are at present shrouded in mystery.—*Lancet*, October 5, 1872.

4. *Physiology of Vomiting*.—Experiments have lately been conducted by Herren, Kleimann and Simonowitsch, in Herrman's laboratory, to corroborate or overthrow the statement made last year by Grimm, that a longer time was required for tartarized antimony to act when it was injected into the veins than when it was introduced into the stomach. The results they obtained fully support Grimm's observation. These experiments are, therefore, strongly opposed to the idea of there being, as some have imagined, a nervous centre from which the impulses occasioning vomiting proceed, for it would clearly be contrary to all analogy that a substance acting directly upon the brain should act more slowly and more feebly when injected into the blood than when it is gradually and imperfectly absorbed from the stomach. They maintain, on the contrary, that the salt acts on the peripheral extremities of the nerves distributed to the stomach, the specific action it possesses inducing vomiting. It seemed probable, if this view were correct, that, even when the salt was injected into the blood, only the portion circulating in the gastric walls, or contained in the secretion, was the really effectual substance in producing vomiting. To ascertain this, they tested the first material ejected in vomiting in a number of dogs into whose veins tartar emetic had been injected, and found that it always contained some of the antimonial salt. The fact that efforts to vomit may still occur after the stomach has been excised they do not regard as at all opposed to their view, since the salt may act on the peripheral extremities of nerves

supplying the œsophagus or intestine, which also may have the power of inducing vomiting reflectorially.—*Lancet*, Sept. 28, 1872.

5. *On Alcohol and Exercise.*—A further addition has recently been made by Dr. PARKES, of Netley, to the remarkable train of researches by which he has laboured to fix the true relations of food to nutrition and work. In these researches, commenced in December, 1866, Dr Parkes has had advantages which very few enjoy, and has used them with a skill and judgment which still fewer possess. He has been able to make his experiments upon soldiers accustomed to a monotonous life and rigid discipline, and in absolutely perfect health. He has been able to measure and analyze the *ingesta* and *egesta* with an accuracy never before attained in prolonged trials, and to fix the conditions of rest and exercise with perfect precision. The results he has obtained are equally valuable to physiology and pathology, and some of them tend to revolutionize our ideas on several important points.

To render Dr. Parkes's latest discoveries intelligible to our readers, it is necessary to give a sketch of the two lines of investigation which he has been pursuing, and which unite into one in the memoir which he presented to the Royal Society on the 25th of April last.

In the first of these he dealt with the question of the relation of work to muscular disintegration, which received such forcible illustration in the celebrated experiment made by Fick and Wislicenus in their ascent of the Faulhorn in 1865. In two series of experiments, made under different conditions, he confirmed the main conclusion arrived at by the Swiss professors—namely, that severe muscular work is not attended with any notable increase of muscular oxidation; or, in other words, that the work is not done at the expense of the muscles. But a wider generalization than this appeared to arise from the experiments, and Dr. Parkes arrived at the conclusion that the metamorphosis of tissue was absolutely *diminished* during muscular work and increased during rest. It is clear that this view illustrates the common experience that the muscles grow by exercise and dwindle in inaction, and that increased nitrogenous food is required for hard work—the addition being wanted, according to Dr. Parkes, for the increased nutrition of the muscles. This unexpected conclusion was assailed by Voit, of Munich, who maintained that no alteration in the excretion of nitrogen took place either during or after work, and ascribed the results obtained by Dr. Parkes to inaccurate measurement of the ingested nitrogen. Dr. Parkes replied in 1871 by some experiments, of which one may be quoted as to all appearance conclusive as against Voit:—

A man was kept for some days on half the normal supply of nitrogen, and then for five days lived on food containing *no nitrogen* whatever. On the fourth day he did an extremely hard day's work with wonderful ease. Now on the first day of non-nitrogenous diet the excretion of nitrogen in the urine was 5.936 grammes. It sank day by day until it reached its lowest point (3.812 grammes) on the day of hard work. But on the fifth day, which was passed in rest, no less than 8.265 grammes of nitrogen passed in the urine.

Whether this experiment, which appears to dispose of Voit's objection, is equally conclusive in favour of Dr. Parkes's theory, may, however, be doubted, and the doubt is by no means cleared up by the author's last-published paper.

The other research to which we have alluded was commenced in conjunction with the late Count Wollowicz in 1870. It had for its object the determination of the effect of alcoholic drinks on the urinary and alvine evacuations, the temperature, pulse, etc. In the first series pure alcohol and brandy, and in the second claret of good quality, were used; and the results demonstrated several very important facts. The alcohol in each form was found to have substantially the same action on the system. No effect was produced on the excretions, for the nitrogen, phosphoric acid, chlorine and free acid all remained unchanged, even when somewhat large doses were given. The temperature also both of the axilla and rectum was not affected; the body-weight and the process of primary digestion did not vary; and the only certain effect of the alcohol during the time of the experiments (three to ten days) was to raise the pulse very materially, the work of the heart being increased by as much as one-fifth.

It appears clear from these experiments that alcohol in a healthy subject, and in moderate doses, does not affect the metamorphosis of tissue, for even the nervous tissues, if their metamorphoses can be measured by the phosphoric acid excreted, underwent no material change; and it can hardly be doubted that the frequent stimulation of the heart's action produced by alcohol in such subjects as the men experimented upon by Dr. Parkes is solely injurious.

We now come to Dr. Parkes's last research, in which the effect of alcohol on work is investigated. This research is in some respects the best of the series. To nearly all the others the objection of Voit was to some extent applicable—namely, that there was no absolute certainty as to the quantity of ingested nitrogen. But Dr. Parkes was fortunate enough this time to find a man—a Scotchman—who was able to live and work for sixteen days on oatmeal, milk, salt, and water, without suffering in health or strength, or even without losing more than two pounds in weight. Enough oatmeal for the whole experiment was first obtained, and was analyzed after thorough mixing. The milk was analyzed at the commencement of the experiment, and was every day diluted to a fixed specific gravity. The quantities were so regulated that the man received every day exactly 20 grammes of nitrogen. The experiment was arranged as follows: For six days the man remained as nearly as possible at rest. Then for three days he worked as hard as possible. Then followed three days more of rest, and then another three days of hard work; but this time he took, at ten, two, and six o'clock in each day, a dose of 4 fluidounces of brandy, the 12 fluidounces taken each day containing 5.4 fluidounces of absolute alcohol. Finally, for two days he rested. Throughout the five periods the food was constant, and the urinary and alvine evacuations were carefully collected, weighed, and analyzed. Many other observations were made, but we can only epitomize the results as regards the nitrogen. The average daily excretion, in grammes, of nitrogen during each period was found to be as follows:—

	In Urine.	In Feces.	Total.
1. Rest . . . . .	15.183	3.765	18.948
2. Exercise on water . . . . .	16.274	4.981	21.255
3. Rest . . . . .	15.850	3.251	19.101
4. Exercise on brandy . . . . .	15.750	4.372	20.122
5. Rest . . . . .	15.007	3.215	18.222

During the whole period the total nitrogen discharged each day was, on an average, 19.59 grammes, against 20 grammes ingested; so that there was a loss in sixteen days of about 7 grammes (108 grains).

It will be seen that these figures do not confirm, although they may possibly prove to be not inconsistent with, the theory which Dr. Parkes drew from his earlier experiments. Even taking the ureal nitrogen alone, the excretion is seen to increase instead of diminish during the first, and to remain stationary during the second, of the periods of work, and to fall off in each of the subsequent periods of rest. The figures show, however, that Voit was mistaken in supposing that no alteration took place in the excretion of nitrogen under either condition. In other respects the research has confirmed the author's previous conclusions, and even anticipations. The brandy did not affect either of the excretions. It increased the heart's action, and that was all. The man not only found that the brandy did not help him in his work, but that it hindered him materially. The first dose did neither good nor harm; but the second made him hot and thirsty, produced palpitation of the heart, and on the third day he found himself "obliged to stop from time to time, because, to use his own words, 'of his breathing not being so good.'"

We must pass by the many other interesting results of these experiments; but we cannot avoid an allusion to Dr. Parkes's concluding remark. He points out that in the face of these experiments it is hard to believe in the current theory of the depressing effect of alcohol on the pulmonary excretion of carbon. Considering that the work of the heart is increased by alcohol, and the metamorphosis of tissue is unaffected by it, it would rather appear probable that an increased oxidation of non-nitrogenous material, and therefore an increased excretion of carbonic acid, must take place to provide the force for the

extra work. The published researches on this subject are indeed by no means satisfactory, and we cordially agree with Dr. Parkes in wishing for new experiments. Perhaps Dr. Parkes himself, whose experiments have suggested the doubt, may be induced to supply the want. In doing so he would add materially to the deep debt of gratitude which every physiologist owes to him.—*Lancet*, Sept. 28, 1872.

6. *The Localization of Brain-Functions.*—MEYNERT, one of the ablest of the modern students of the anatomy of the nerve-centres, has sought, by combining phrenological with clinical and pathological observation on the functions of the cortical layer of the cerebral hemispheres, to define to some extent the localization of the different functions in the gray matter of the cortex. He distinguishes five special functional centres. 1. The olfactory lobe or nerve, which, highly developed in animals well gifted with the power of scent, is almost atrophied in man, less highly endowed in this respect. 2. The walls of the fissure of Sylvius. These are in intimate relation with the power of speech, as is found in aphasia, which is the consequence of changes in them. 3. The occipital and temporal lobes. Anatomy shows the relations of these parts with the organs of the senses—the retina, labyrinth, and olfactory nerve. In cases of blindness and deafness rapidly developed, these lobes are the seat of evident alterations. The experiments of Flourens on the ablation of the cerebral lobes support this theory; for, if but little of the substance be removed, the senses are not much affected; but if the ablation be carried deeper, the sensorial functions immediately cease. 4. The frontal lobes. These lobes are the principal seat of motor excitation, as is shown by their anatomical relations with the corpora striata. Besides, in the forms of psychoses which are accompanied by extensive disorders of motility (general paralysis), these are the most atrophied of all the parts of the brain. The continued need of movement, the agitation of mania, are equally based upon change in the frontal lobes. 5. The cornu of Ammon. This organ plays an important part in the functions of motility, and almost always presents, in epilepsy, conditions of atrophy or sclerosis.—*Brit. Med. Journ.*, Oct. 19, 1872.

7. *The Two Cerebral Hemispheres.*—Dr. FLEURY, in a paper read before the French Association, compared the dynamism of the two cerebral hemispheres. Serre and Broca have for a long time pointed out the functional inequality of the two cerebral hemispheres, and a great number of clinical facts confirm their ideas. Gratiolet has observed the same inequality in the development of the brain in the foetus. The left hemisphere excels the right. Dr. Fleury explains this functional inequality by the unequal distribution of blood in the cerebral hemispheres. Relying on the physical laws which regulate the course of the blood in the veins, and on the results of numerous measurements, he shows that the left hemisphere receives a more considerable quantity of blood than that which reaches the right hemisphere. The measurements taken of the jugular veins also confirm this opinion. Finally, we have to mention the agreement of a greater afflux of blood to the right superior limb.—*Brit. Med. Journ.*, Sept. 28, 1872.

8. *Mode of Growth of Long Bones.*—Dr. OLLIER, of Lyons, communicated to the French Association for the Advancement of Science the results of his recent experiments on this subject. The theory of peripheric growth, which he has held for a long time, has been lately combated by the learned German doctors, Wolff, Calmann, and Meyer, who are supporters of interstitial growth. M. Ollier has observed anew a great many times that two nails placed on the diaphysis of a bone, at an accurately measured distance, are separated by the same space when the animal, having become an adult, is sacrificed. In very young animals, there is sometimes a slight divergence, never exceeding more than a fourth of the whole length of the bone. This fact would seem to weaken the theory, if one did not know that very young, and in consequence soft bones, are under the general law of growth of soft tissues, of which the development is interstitial. A more considerable divergence of the osteoplasts in adult

bones has also been made an objection to the theory of peripheric growth; but the researches of Ranzier have demonstrated the variableness of these elements, and in consequence their utter uselessness in this question. When the cartilage of conjugation is removed, the growth of the bone is stopped, or at least diminished. Interstitial growth is observed occasionally in certain birds, and in some mammals; but in this last case the anomaly explains itself, because the bone, softened by inflammation, has taken the properties of the soft tissues. Moreover, this growth is never more than a very small fraction of the length of the bone, which is the seat of it. Passing from the normal to the pathological growth of bone, M. Ollier remarked that since 1867 he has shown that irritation of the diaphyses of a long bone provokes the lengthening of this bone; whilst the irritation of the cartilage of conjugation leads to the arrest of its development, and that not by the more rapid solidification of the epiphysis, but by a simple perturbation in the work of ossification. The clinic confirms the results of experiment. Another fact, which has great practical importance, is the inequality of the part of the two cartilages of conjugation in the development of bone. The humerus grows especially by the superior cartilage of conjunction; the radius and the ulna, on the contrary, by their inferior cartilage, in such a way that the constituent parts of the elbow are only of very slight utility in the general development of the superior limb. The reverse takes place in the articulation of the knee and the bones which form it. M. Ollier insists on the importance of these facts, because of the results that attend articular resections practised on children. He has observed since 1861 that, after resections of the elbow in young children, the superior limb continues to grow, whilst the inferior limb hardly grows any more after resection of the knee. The deformity which results from this stoppage of the development is more and more exaggerated as the fellow-limb continues its normal growth. After resections, as after certain inflammatory lesions, a growth lengthwise of the limb operated on is sometimes observed. This lengthening is not accompanied by hypertrophy of the bone; it becomes, on the contrary, lighter. Hence M. Ollier has called this growth the atrophic lengthening. M. Ollier explains this anomaly by the diminution of the pressure which the bones exercise on one another. The diminution of this pressure leads, in fact, to an atrophic lengthening. This it is easy to observe in the bones of a paralyzed limb, but without waiting for that general atrophy which soon succeeds the functional inertia of the limb.—*Brit. Med. Journ.*, Sept. 28, 1872.

9. *Structure and Action of the Round Ligament of the Uterus.*—Notwithstanding the rather extensive literature that exists upon the subject of the Round Ligament of the Uterus, says Dr. E. L. SCHIFF in an article devoted to its consideration in the last part of Stricker's "Jahrbuch," there still remain several points to be cleared up. The round ligaments have long been known to contain both striated and unstriated muscular tissue; but considerable discrepancies occur in different authors in regard to the disposition of these fibres. The honour of being the discoverer of the round ligaments belongs to Carolus Stephanus, though they were first correctly described by the celebrated anatominist, Winslow. Meckel pointed out the presence of muscular fibres in them, though he only referred to the organic fibres continued upon them from the uterine walls. No less than sixteen authors have given detailed descriptions of the structure and relations of the round ligaments since Meckel's time. Amongst these Rosenberger may be specially mentioned as having distinguished three fasciculi of striated muscular fibres, of which two join with the fibres of the *musculus transversus abdominis*, one at the internal, the other at the external margin of the abdominal ring, whilst the third ends in a tendon that joins with the external limb of Poupart's ligament. A few other fibres, according to Rau, terminate in the mons veneris and vulva, whilst others are attached to the crista and *symphysis pubis*. As regards the function of the round ligaments, it was formerly held that they simply served to maintain the uterus in position. Rau, however, maintained that by means of their contraction the uterus was drawn down and fixed during the ninth month of pregnancy, keeping it in this position during the pains of labour. In this he was supported by

Velpeau, who had actually observed these contractions, and by Schweighäuser, who had felt a vermicular movement in them in a case of inverted uterus. The pathological conditions of the round ligaments that have been noticed are: hypertrophy, which occurs not only normally during pregnancy, but in all cases of enlargement of the organ; hyperæmia and inflammation; dropsy and hydrocele; fibroid tumours and cysts; and, finally, contraction and atrophy, leading to anteversion and lateral displacement of the uterus, described by Martin. Schiff's own investigations show that the round ligament is a prolongation of the uterine wall below the Fallopian tube outwards, forwards, and slightly downwards towards the abdominal ring, through which it passes, becoming gradually broken up into fibres at its outer opening. It is composed of organic and transversely striated muscular fibres, connective tissue, elastic fibres, vessels, and nerves.

Commencing from the uterus, the first third of the ligament is, Dr. Schiff says, chiefly composed of unstriated muscular fibres, which are continuous with those of the external and middle layers of the uterine tissue, and for the most part run along its upper border. Striated muscular fibres first appear at the inner third, and, increasing in number towards the outer part, become continuous with the fibres of the transversalis abdominis. They are arranged in three fasciculi, which run along the upper border of the ligament, and sometimes form loops like the cremaster in the male—always, however, returning to the transversalis. The middle third of the ligament is very vascular, its looped and anastomosing veins recalling the plexus pampiniformis of the cord. The elastic and connective tissue fibres are continued through the abdominal canal into the aponeuroses of the abdominal muscles, the mons veneris, and the labia majora. During pregnancy Schiff finds that the round ligaments are about four times thicker than in the virgin state, and end in a kind of cone on the uterus, the line of demarcation between the two being altogether obliterated. The striated fasciculi have at this period also undergone great hypertrophy, and have coalesced to form a large muscle that can be dissected out with ease. The simultaneous contraction of the two ligaments therefore, he maintained, would cause a downward and forward movement of the fundus uteri. Their presence and action would maintain the normal anteversion of the uterus, whilst their relaxation would favour its retroflexion; and, finally, their downward pull during labour would be greater in proportion to the degree of ascent that the fundus uteri had undergone.—*Lancet*, Nov. 16, 1872.

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## MATERIA MEDICA, GENERAL THERAPEUTICS, AND PHARMACY.

10. *On the Physiological and Therapeutical Properties of the Different Immediate Principles of Opium.*—In a long and interesting series of researches Dr. RABUTEAU has extended the investigations of Claude Bernard upon the physiological and therapeutical properties of the constituents of opium. Dr. Rabuteau has examined these properties, not only as they affect the lower animals, but also the human subject, and he has, moreover, considered the alkaloids of opium in relation to their *anodyne* and *anexosmotic* effects. [By the word *anexosmotic* Dr. Rabuteau indicates the property of preventing the flow of liquid through the intestinal walls into the intestinal canal.—REPORTER.] He has specially examined these two effects, because opium is very frequently employed to allay pain and to arrest diarrhoea; and he has not only examined the properties of the alkaloids of opium, but also those of the other constituents, such as meconic acid, meconin, etc. It is already well known that the activity of the immediate principles of opium is not the same in each; but Dr. Rabuteau shows, besides, a fact which was not previously known, namely, that the order of activity of these same principles is not the same in man and in the lower animals. He also demonstrates, by the evidence afforded by his own experi-

ments as well as by those of his predecessors, the principles of opium which cause sleep in the human subject, those which allay pain, those which arrest diarrhœa, and, lastly, those which act upon the system in a more energetic and dangerous manner when given in large doses. The principles which have been discovered in opium, and the order in which they are described by Dr. Rabuteau, are as follows :—*Basic principles.*—Thebaini papaverin, narcotin, codein, narcein, morphin, opianin, porphyroxin, pseudo-morphin. *Other principles.*—Meconic acid, meconin, water, caoutchouc, resin, fatty matter, gum, mucilage, and extractive matters.

The following are among the more important results of Dr. Rabuteau's researches on these substances :—*Thebain* produces, in the lower animals, violent convulsions, similar to those caused by strychnia, but in man it is far less poisonous than the latter alkaloid. In order to ascertain the *anexosmotic* properties of this and other principles, Dr. Rabuteau drew out from an aperture made in the abdominal walls of certain animals a knuckle of intestine, into which, after tying it, a solution of sulphate of soda was introduced, and then the intestine, tied at both ends, was returned into the abdomen, the animal having previously had a solution of thebain injected under the skin. In the case of this alkaloid the portion of intestine was examined after the death of the animal, and was found to contain a large quantity of fluid. Thebain, therefore, does not counteract the effect of purgatives, or, in other words, is not anexosmotic, and, consequently, is not an opiate preparation which produces constipation or arrests diarrhœa. Dr. Rabuteau thus summarises the properties of thebain :—It produces convulsions, and is poisonous in the lower animals, but is less active than strychnia ; it is not very poisonous in man ; it does not prevent the exosmotic currents of the intestine ; it is not soporific, but it increases the anæsthetic effect of chloroform ; and it is anodyne.

As it is impossible, from want of space, to specify the researches made by Dr. Rabuteau on each constituent of opium, we can only give his results, which are chiefly as follows :—*Papaverin* is much less active than thebain, and produces hardly any effect when administered in moderate doses to the lower animals, but in large doses it produces convulsions in frogs. In the case of the human subject it possesses but little activity in rather large doses, as, for instance, twenty centigrammes ( $\frac{2}{10}$  of a gramme, about fifteen grains being about equivalent to a gramme) ; but in larger doses it is poisonous, and causes convulsions ; it does not arrest diarrhœa, or, in other words, it is not anexosmotic ; it is not soporific, but it assists the anæsthetic action of chloroform. *Narcotine.*—With regard to this principle, Dr. Rabuteau confirms the results of previous observers as to its negative characters. *Codein* is more poisonous to man than thebain, but, on the other hand, according to the experiments of Claude Bernard and Dr. Rabuteau, thebain is the more poisonous to the lower animals. Codein is dangerous to man in large doses, it is very slightly soporific, very slightly anodyne, and is not anexosmotic, and, therefore, is useless in the practice of medicine. *Narcein*, according to Claude Bernard, is the most soporific of the bases of opium, and is less poisonous than thebain, codein, and papaverin ; but Dr. Rabuteau, from his more recent researches, thinks that although narcein is more soporific in dogs than morphin, yet that in the human subject morphin is superior in this respect. Narcein augments the action of chloroform, and it is anodyne and anexosmotic. *Morphin* is the most poisonous and the most soporific of the principles of opium in man, but it is also the most anexosmotic, as has been proved by experiments similar to those related in connection with the properties of thebain. It is also anodyne, as is well known, but it presents this inconvenience, that it deranges the system by causing loss of appetite, nausea, and vomiting. The other principles of opium are of so little importance in medical practice that it is unnecessary to refer to them in detail.

Dr. Rabuteau concludes his paper with some observations on the simultaneous action of chloroform and the alkaloids of opium. It has been found that the lower animals were much less sensible to pain when they were subjected to the influence of chloroform and also the opiate preparations ; thus, in cases where both agents were administered, the insensibility to pain remained, even

when the chloroform was no longer administered, and yet the animals did not sleep. The alkaloids of opium, therefore, generally continue the anodyne action of chloroform, although they are not all soporific, but they almost all possess the property of diminishing sensibility. Claude Bernard and Nussbaum have found that when an opiate subcutaneous injection was performed in certain cases of operation on the human subject, and chloroform was subsequently given, the patient did not awake as usual, but continued to sleep, and during this sleep there was insensibility to punctures, incisions, and even the actual cautery. Dr. Rabuteau, therefore, thinks that insensibility might be obtained with greater certainty and safety by the combined administration of a solution of chloroform and an opiate, than by giving either agent alone.—*Brit. and For. Med.-Chir. Rev.*, Oct. 1872, from *Gazette Hebdomadaire*, April and May, 1872.

11. *Bromal Hydrate*.—Dr. BERTI and NAMIAS state the following to be the results of the experiments made by them upon the use of bromal hydrate :—1. Even in small doses and suitably diluted this substance produces burning in the throat, pyrosis, vomiting, and diarrhoea. 2. It is best taken in an emulsion, but by long use, even in this combination, it produces vomiting and purging. 3. Even relatively large doses do not cause sleep, and do not tranquillize the patient. In epilepsy, bromal hydrate is useless, and only in one case, where bromide of potassium was abandoned, the hydrate cut short the attack. 4. Subcutaneous injections cause phlegmon, and produce besides no subsequent effects on the nervous system. 5. Rubbed up with an equal quantity of fat, bromal hydrate causes erythema when applied to the skin, but it differs in its injurious effects from sinapism in this respect, that this erythema is accompanied with deep-seated and very obstinate infiltration of the subcutaneous areolar tissue. 6. Even as a stimulant bromal hydrate possesses no superiority over similar agents, but is inferior to them in this respect, that it acts more slowly and its operation is less limited. 7. Poisonous doses produce death with sopor, paralysis of motion and sensation, and rapid or gradual cessation of the respiratory movements. Bromal is by no means to be employed as an internal or subcutaneous medicine, since it is more caustic than other agents. It is only when it is desirable to bring a large quantity of fluid to a particular part of the skin, as in cases when dry cupping-glasses are used, that bromal hydrate may be tried externally.—*Journal de Bruxelles*, April, 1871.

12. *The Antiseptic and Physiological Action of Silicate of Soda*.—MM. A. RABUTEAU and F. PAPILLON, after briefly referring to the researches of Professor Dumas on the action of borax in fermentation, describe at length (*Comptes Rendus*, Sept. 30th) a series of experiments made with the view of ascertaining the effect of silicate of soda upon alcoholic fermentation, upon the fermentation of urea, upon lactic fermentation, and upon amygdalic fermentation. It appears that silicate of soda acts in a similar manner to borax, but far more energetically. Not only does it prevent fermentation, but it is a strong disinfectant; and its physiological action, when injected in the blood in aqueous solution (1 to 40), is fatal to animal life, while such is not the case with borax under similar conditions.—*Brit. Med. Journ.*, Oct. 26, 1872.

13. *Sulphate of Cinchonia as a Substitute for Sulphate of Quinia*.—M. BRICQUET read before the French Academy of Medicine, Oct. 1, 1872, a memoir on the employment of sulphate of cinchonia as a substitute for sulphate of quinia in the treatment of intermittent fevers and acute articular rheumatism. The author endeavoured to prove, contrary to the opinion of MM. Bouchardat and Michel Levy, that the sulphate of cinchonia is exempt from toxic properties. He further adduces numerous statistical investigations to prove that this salt, administered in solution in divided doses, so that the last dose should be given about twelve hours before the expected paroxysm, cures intermittent fevers in a great majority of cases, and that it is a certain febrifuge free from all ill effects, and possessing the great advantage of being less expensive than the sulphate of quinia.—*L'Union Médicale*, Oct. 3, 1872.

14 *Action of Atropia on Sweating.*—Mr. SYDNEY RINGER contributes to *The Practitioner* (Oct. 1872) some additional observations on this subject.

“Our observations,” he says, “lead us to conclude that  $\frac{1}{60}$  of a grain of atropia, injected hypodermically, is sufficient in most cases to check sweating for one night. Our observations are too few to determine whether after employing the injection on several nights the sweating can be relieved on discontinuing the treatment, but we believe that after a short course of this treatment the injection may be discontinued for a few nights without the return of sweating.

“This treatment gave the phthisical patients better sleep, and we think allayed their cough; but unfortunately in most cases it caused very uncomfortable dryness of the throat.

“Mr. Johnson assisted me in some experiments with stramonium. We found that, like belladonna, stramonium, subcutaneously injected, will very speedily check sweating, and produce dryness of the mouth. We noticed that while belladonna and stramonium check sweating, they deeply flushed the face. Hence their influence over sweating cannot be due to their effect on the sympathetic ganglia thereby lessening the supply of blood to the skin, unless they can affect the bloodvessels supplying glands, while they leave unaffected the other vessels.”

15. *Experience of German Physicians in the use of Chloral Hydrate.*—Dr. ALOIS MÖNTI, of Vienna, has lately communicated to the *Jahrbuch für Kinderheilkunde* some observations on the use of chloral hydrate in the diseases of children. He found that, when doses of the drug suitable to their age were administered, the children exhibited a slight redness of the face, and a condition similar to intoxication, passing off into deep sleep. The pulse was at first somewhat accelerated and afterwards retarded, the respiration was unchanged, and the temperature of the body was reduced. Only very large doses produced a well-marked numbness of the skin and consecutive anaesthesia, with contraction of the pupils. The sleep was normal, and on waking there remained neither sleepiness nor congestion of the head, nor any other disturbance of sensation. The hydrate sometimes produced vomiting, but never diarrhoea, and the urine after twenty-four hours contained sugar. The dose was from  $\frac{1}{100}$  to  $\frac{2}{100}$  of a gramme (a gramme is about fifteen grains) for newly born children, and proportionally larger doses as the infants grow older. As to the special uses of the hydrate in children’s diseases, Dr. Monti’s remarks are as follows:—1. The hydrate fulfils the indication of causing sleep as well and completely in children as in adults. 2. In convulsions, whether symptomatic or idiopathic, the hydrate acts on the symptoms, and is only contra-indicated when the convulsions are complicated with inflammation of the bronchi, the lungs, or the heart. It must be used with great caution in the case of weak and anaemic children. Spasm of the larynx has been relieved by the hydrate, and the drug deserves notice in the treatment of chorea. In hooping-cough it seems to be useful in the first stage, but injurious in the third by diminishing expectoration. On the other hand, the chloral hydrate is uncertain and useless as an anaesthetic for surgical purposes, or in the treatment of any form of tetanus.

Dr. KÜHN, of Haina, has communicated to the *Berlin Klinische Wochenschrift* his experience of the combination of chloral hydrate with morphia in the treatment of chronic cases of excitement in insanity, and in acute mental diseases caused by alcohol. The large doses of chloral hydrate necessary in delirium tremens make the employment of this drug rather dangerous. But Dr. KÜHN gave to some cases of paralytics seized with occasional fits of excitement, and to patients suffering from dipsomania, a series of doses of chloral hydrate, with hydrochlorate of morphia, without any unfavorable consequences.

Dr. Stark has also published in the *Württemburg Correspondenz Blatt* some remarks on the use of the hydrate in the treatment of mental disease. He recommends the combination of chloral hydrate with morphia (called by him morphio-chloral) in all cases where it is desired to produce a rapid relief of mental excitement. Dr. Stark considers that the hydrate belongs to the class of the most powerful sedatives and narcotics; that it is indicated in convul-

sions, nervous excitement, and agrypnia, and in the relief of pain; that it should be employed with caution when there are complications with affections of the stomach, lungs, or intestines, and in cachectic persons; that the dose of one or two grammes is generally sufficient; that morphio-chloral is generally preferable to chloral hydrate; and that subcutaneous injections of chloral, or the use of chloral hydrate in combination with injections of morphia, are to be rejected from practice.

Dr. Josef Steinhaus has published in the *Vienna Medical Press* some observations on the use of chloral hydrate in surgical operations, but it is alleged by other writers that such employment of the drug is so dangerous as to forbid its use.—*Brit. and For. Med. Chir. Rev.*, Oct. 1872, from *Schmid's Jahrbücher*, April, 1872.

16. *Value of Quinia as a Prophylactic.*—Dr. J. B. HAMILTON, Royal Artillery, states (*Indian Medical Gazette*, Nov. 1871) that he has had numerous opportunities in the East and West Indies, and in Central America, of testing the value of quinia and its allied drugs as prophylactics where malaria is present. In Jubbulpore, in the East Indies, Dr. Hamilton had the care of a battery of the Royal Artillery, and he gave the men under his charge two grains of quinia each with marked benefit, during the months of September and October, 1865. In 1866 a regiment of the Line arrived at the same station, and, as the surgeon of the regiment did not believe in the prophylactic powers of quinia, the alkaloid was not administered to the men, although Dr. Hamilton continued to give it to his battery. The wet season of 1866 happened to be a very malarious one, and fever of a severe remittent type attacked the regiment, 150 men being in hospital out of a force of 500, and about twenty deaths took place. During the same time the health of Dr. Hamilton's battery remained remarkably good, only about 4 per cent. being in the hospital, and no deaths occurring. Ever since that year Dr. Hamilton has carried out the same plan, and last year he made some comparative experiments as to the value of quinia, cinchonia, and quinoidia, and the result was that he placed cinchonia first as a prophylactic, then quinia, and at a long interval, quinoidia. He finds that by the prophylactic plan the cases of fever are fewer, of a milder type, and more amenable to treatment, while the sequelæ, such as dysentery, enlargement of the spleen, etc., are very rare.

17. *Methylene Ether.*—Dr. B. W. RICHARDSON states (*Med. Times and Gaz.*, Nov. 23, 1872) that the question has been asked him if he were to undergo an operation, and had determined to take an anæsthetic, which would he select in respect to safety and convenience? His answer is: "For safety I might prefer ether, for convenience I should prefer methylene; but I should actually combine the two. I should inhale from a mixture of pure methylene bichloride and absolute ethylic ether, having a fluid specific gravity of 1.100.

"The boiling-points of pure methylene bichloride and of ethylic ether are within 4° Fahr. of each other; the vapour density of each is nearly the same—that of ether being 37, and that of the methylene 42.5, compared with hydrogen as the standard of unity. In combination, therefore, the two liquids yield a mixture possessing a steady and uniform boiling-point and a nearly equal vapour-density, so that equality of effect is sustained throughout a long administration. The vapour is, moreover, agreeable to inhale—it is neither irritating nor suffocating. I am inclined to think, too, that the physiological action of the methylene is favourably modified by the ether.

"For quickness of action the mixture thus described does not approach simple methylene bichloride, but for safety I believe it stands hardly second to the safest anæsthetic I have ever experimented with—viz., methylic ether gas. It is best administered from a simple mouth-piece that has been constructed for me by Messrs Krohne and Sesemann. From three to six fluidrachms is the average quantity required," he says, "to produce good anæsthesia." He calls this mixture *Methylene Ether*.

18. *Nitrous Oxide as an Anæsthetic.*—The Joint Committee of the Odonto-

logical Society of Great Britain and of the London Dental Hospital, appointed to inquire into the value and advantages of protoxide of nitrogen as an anæsthetic, have made their report.

The points to which the Committee directed their attention were chiefly the following:—

1. The physiological action of the gas, and the methods of resuscitation in threatened death.
2. The possibility of prolonging its anæsthetic effects.
3. The best methods of preparing, storing, and administering the gas, and the modes of meeting anomalous effects produced by its administration.
4. Any other additional information which might come to their knowledge.

Dr. Frankland, Mr. Coleman, and Mr. Braine were appointed to carry out individually experiments to ascertain, if possible, the physiological action of the gas. The conclusions which the two first-named gentlemen consider deducible from their investigations are given in the report.

With regard to the question whether nitrous oxide is decomposed when it is respired, a series of experiments were made by Dr. Frankland on a young and tame rabbit, and the results are given. Although the results do not admit of being used for the absolute solution of the problem proposed, nevertheless—as the observation of a manometer showed that the gases suffered but a very small diminution of volume during respiration—they may, the experimenter thinks, be safely taken as proving that not more than a very small proportion of nitrous oxide, if any, was decomposed, since the percentage proportion of this gas underwent no diminution during the progress of respiration. It was also shown, Dr. Frankland believes, by his experiments, that nearly the whole of the oxygen absorbed by the animal was employed in the oxidation of carbon; that the united volumes of nitrogen and nitrous oxide suffered a corresponding slight augmentation; and, thirdly, that the volume of nitrogen in the mixed gases experienced an apparent slight reduction during their use in respiration, whilst that of nitrous oxide underwent a slightly greater increase. But, with regard to the last results, Dr. Frankland admits that they may be considered within the limits of experimental error.

Mr. Coleman proceeded also to determine the question whether nitrous oxide was or was not decomposed when respired. He deduces, from his experiments made on the expired air of the human subject, the conclusion that, if nitrous oxide gas be at all decomposed in the blood, it must be only in very small quantities.

The majority of the Committee adopt the opinions advanced by these two gentlemen, and recommend that, in the event of alarming symptoms presenting themselves during the administration of the gas, it be immediately suspended, and no impediment be offered to the free admission of air into the lungs.

Prolongation of the anæsthesia, the Committee state, may be accomplished in mouth operations by "a nose-piece," and by throwing a jet of gas into the mouth at each inspiration while the operation is proceeding, the nose being kept closed by a spring clip; in operations on other parts of the body, by checking and re-supplying the gas through the face-piece from time to time, as circumstances may require, insensibility can be kept up for several minutes; and the Committee direct the attention of surgeons to this fact especially, because many accidents have lately occurred from the administration of chloroform. The Committee point out the great improvements carried out in the administration of nitrous oxide, and in its storing and liquefaction.

The Committee have now in their possession the records of 58,000 cases in which the gas has been administered in this country. This extended experience enables them to add that the occasional occurrence of vomiting, hysteria, etc., which occur under the influence of the gas, have been less manifested than usual, from the better administration of the anæsthesia and the purer character of the gas.

Its mode of producing death they believe invariably to commence at the lungs, and that artificial respiration will resuscitate the animal as long as the heart continues beating. Nitrous oxide mixed with chloroform did not answer

in the hands of the Committee ; but the latter as an adjunct was found to be of service in special circumstances.

The Committee complete their report by expressing their firm conviction that nitrous oxide is the safest anæsthetic known, and that not a single fatal case has occurred which can be fairly attributed to its action.—*Brit. Med. Journ.*, Nov. 9, 1872.

19. *Claims of Ether as an Anæsthetic.*—The number of deaths which have followed the administration of chloroform has at last awakened attention in England to the safety of ether as an anæsthetic, and this has been more particularly manifest since Dr. B. Joy Jeffries, of Boston, during the recent meeting of the Ophthalmic Congress in London, called attention to the subject, and exhibited the method of administering ether employed in this country.

Mr. J. WARRINGTON HAWARD, Assistant-Surgeon to the Hospital for Sick Children, and Surgical Registrar to St. George's Hospital, in a communication to the *Brit. Med. Journ.* (Nov. 9th), writes : " For more than two years past (owing greatly to the representations of Dr. Bigelow) I have been in the habit of giving ether largely both in public and private practice, and, so far from its being practically excluded from hospitals, have administered it for the majority of the operations at St. George's Hospital during that period. Moreover, I had advocated its use in a paper read before the Royal Medical and Chirurgical Society in October, 1871, in which I proved its superior safety to chloroform, and described the method of its administration."

Mr. FRANK UNDERHILL writes to the same journal : " Having lately returned from a visit to the United States, where I had good opportunities for inspecting most of the large hospitals, of seeing ether administered a great number of times, I am persuaded that the advantages claimed for it by our American brethren are fully proved by facts. During the whole of the time I was in the country—a period of nearly a year—I never saw or heard of a death which could be justly attributed to its use."

Mr. J. T. CLOVER, in a paper in the same journal, in describing the merits of ether and chloroform as anæsthetics, says : " There are two questions which ought to be considered separately. 1. Which is the less likely to cause death ? 2. Which leaves the patient in the more favourable condition afterwards ?

" As to the safety of chloroform, my experience of it during the last twelve years, since I adopted the plan of measuring the chloroform and air, so as to insure that there shall not be more than three minimæ and a half in each hundred inches of air, has been so favourable that I have never felt the need of another anæsthetic on the ground of safety. I have administered it without rejecting a single case as unfit for it, and to many persons whose heart and lungs were in a morbid state. I have never had a death from it or from any anæsthetic. . . .

" If chloroform be administered without due means to prevent a large dose from being given, and without watching the pulse, I have no doubt that it is more dangerous than ether.

" As to the question, whether ether or chloroform leaves the patient in the better condition, I should say that a patient kept quiet during an operation for half an hour would recover better from chloroform than from ether. The point may be considered as doubtful, and perhaps the after-effects of ether would be less unpleasant if we could contrive a better way of administering it."

Dr. J. MORGAN, Surgeon to Mercer's and to the Westmoreland Hospital, strongly advocates, in an article in the *Dublin Journ. of Med. Science* (Nov. 1872), the claims of ether as an anæsthetic. He states : " I myself have used ether over 160 times during the last two months, and I can unhesitatingly say that nothing could be more satisfactory. I did not once see the slightest approach to syncope, or even any unpleasant symptom, although it was exhibited to patients as old as seventy-one and as young as four years.

" I have produced full insensibility in three minutes, and have kept a patient for fifty-five minutes under the influence.

" I have used ether where chloroform had been used before, but the results were incomparably superior in every way ; there was less danger, less struggling,

no sickness of stomach, and a more manageable anaesthetic condition from which the patient emerged as from a sleep. A most successful instance, during the last few days, for a cataract operation, by Dr. Jacob, on a child of eleven, is worth recording. The child was laid on the operating couch, was insensible by etherization in four minutes, was operated on and awake again, with a smile on the face, within ten minutes, wholly unconscious of anything having been done.

"Dr. Taylor, of Nottingham, in a note just received, speaking of ether, mentions: 'I used it this morning on a private patient for cataract extraction, to whom I had before given chloroform, which produced such alarming results that I dare not give it again. I have given it in about twenty cases with satisfactory results.'

"It has been stated that ether, when used as an anaesthetic, produces as much, if not more, struggling than does chloroform, in which the spasmodic condition is so frequent, that writers lay it down as one of the stages. I must say I find this not to be the case, and I am satisfied that, with a larger experience, practitioners will confirm this statement. The struggling or spasm is due to the imperfect modes hitherto pursued in the administration, where a sponge is used, or a cone of paper, or a towel, or, in fact, where air is freely admitted; this, I believe is a mistake. Air should be more or less perfectly excluded, and the patient be allowed to breathe the ether-vapour repeatedly. The sickness of stomach which has been noted, as in chloroform administration, is due chiefly to the same cause, and also to the fact that the patient is allowed to eat within a short time of the administration. I have only seen five cases of sickness in 160, and in these etherizations, either food or drink had been taken shortly before.

"I have used ether in several cases where I had used chloroform previously, and found that the struggling or spasmodic stage, which was energetic and almost uncontrollable in chloroformization, was nil with ether.

"Sickness of stomach is said to succeed to etherization more than to the use of chloroform; my experience with both leads me altogether to disagree. The precaution should be taken, that no food be ingested within two or three hours at least. I am sure the instances will be rare, indeed, where sickness occurs, if this simple rule be adopted.

"Another objection, if it can be called one, that has been suggested is, that of the odour of ether from the breath being so persistent. I have not found it after a few hours. But even if it lasted a week, it could not have a feather's weight influence in the consideration of using an agent which has been shown to be '*the safest of all anaesthetics*,' and that which, chloroform, which alone can be compared with it in efficacy, is '*eight times more dangerous*.'

In an editorial in the *British Medical Journal* (Nov. 23) it is stated that a good deal of progress has been made during the last fortnight in the use of ether. "Three weeks ago the administration of ether was a rare exception; we have reason to believe that it is already becoming the rule."

The latest No. of the *British Med. Journal* (Nov. 30th) which we have received contains a note on the administration of ether by JOHN COUPER, Surgeon to the London Hospital, and to the Royal Ophthalmic Hospital, Moor-fields, in which he states: "Having repeatedly seen the administration of ether by Dr. Joy Jeffries last August, I have since employed it exclusively, and propose now to state, briefly, the results of this trial. The chief operations performed have been ovariotomy, lumbar colotomy, amputation through the knee-joint, partial resection of ankle, excision of tumour over the parotid gland, besides many eye operations."

"Thus far my impression is, that ether is less dangerous to life than chloroform, on account of its inaptitude to produce cardiac syncope; that its administration is rarely if ever followed by obstinate and dangerous nausea; that it narcotises as quickly and as certainly as chloroform, and with as complete muscular quiescence; and that recovery from it is generally quiet and satisfactory."

In an editorial in the same No. of this journal it is stated: "We are compelled to postpone, for want of space, letters from Mr. Jeaffreson (Newcastle) and Mr. Greenway (Plymouth), which speak favourably of ether. We learn from

Mr. Wheelhouse that, at the Leeds Infirmary, in consequence of what we have felt it our duty to write on the subject, ether has had a continuous trial there as an anæsthetic during the last few weeks with favourable results, which confirm all that has been said of its efficiency."

It will be seen that a decided reaction has at last taken place in England in favour of ether as an anæsthetic; it is surprising that so many surgeons should have thus long obstinately persisted in preferring the use of chloroform, notwithstanding the numerous deaths which have followed its use, and the strong array of evidence which has been adduced, in this Journal and elsewhere, of the superior safety of ether.

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## MEDICAL PATHOLOGY AND THERAPEUTICS, AND PRACTICAL MEDICINE.

20. *Researches on the Embolic Process.*—Prof. JUL. COHNHEIM remarks that the copious literature on the subject of embolism and its consequences, has been chiefly concerned in determining the anatomical condition; the mechanical causation of infarction, etc., has not been explained; and, although Virchow clearly showed that the existence of a collateral circulation was a means of preventing, in many cases, the after-effects of an embolon (infarction), yet the usual explanation, to be found in the German text-books (Rindfleisch, Förster, etc.), is that this same collateral circulation, leading to rupture of the capillaries, is the cause of infarction. The experiments hitherto instituted have been incomplete, in so far as the conditions induced by the introduction of embola into the circulation have not been under observation from beginning to end. At a longer or shorter interval after the introduction of the embolic substance, the organs have been examined; but the intermediate process has not been objectively determined, and the explanations have been necessarily more or less fanciful. Dr. Cohnheim made his observations on the tongue of the frog, where the circulation could be at any time watched through a low power of the microscope. This organ was found to be well suited for the purpose, not only from the arrangement of the bloodvessels in its substance, but also from the peculiar origin of the lingual artery, along with the carotid, from the aorta, whereby it was possible to throw embola into the lingual and its branches, without, at the same time, plugging other parts of the vascular system. The substance used for injection was that adopted by Panum, viz., wax in minute pellets, coloured black, in the form of an emulsion. When an embolon was lodged in an arterial branch, the first and instantaneous effect was, as might be expected, that the blood was driven with increased force through the branch immediately below, the increased rapidity being continued into its capillaries and returning vein. If the obstructed artery had a collateral anastomosis, the pressure thrown upon the branch below it soon became equalised; but if the embolised artery had no anastomosis beyond the plug, the increased rapidity in the lower branch continued for some time, without leading to rupture and hemorrhage, and became gradually less. In the obstructed artery the contents were found at rest for a distance on both sides of the embolus, on the cardiac side, as far as the next branch. It was observed, as peculiar to the frog, that the blood did not coagulate in the vessel; sometimes a closely packed column of red corpuscles occupied it, and at other times it was filled with plasma and white corpuscles alone, the variation being probably dependent on the suddenness with which the stoppage in the circulation was brought about. The condition found in the capillaries of the embolised artery, and in its returning vein, differed entirely according as there was or was not a true anastomosis. If there were, beyond the plug and between it and the capillary territory of the obstructed vessels, another branch pouring in, then the circulation in the capillaries and the vein of the embolised artery remained almost unaffected. This observation corresponded with what Virchow had previously determined. If, however, there were no such anastomosis, then very note-

worthy consequences followed. An artery that has no anastomosis between the seat of the embolon and its capillary territory, may be conveniently styled, says Dr. Cohnheim, a "terminal artery" (*Endarterie*); and in the case of a terminal artery it was uniformly found, whether the artery were large or small, that the blood in its capillaries and returning vein, remained absolutely motionless up to a certain point. At the point where the vein opened into another vein coming from a free artery, and in which the circulation might be either of normal or of increased rapidity, there commenced a backward movement of the stagnating blood in the occluded vein. The free vein transmitted the greater part of its blood in the normal direction towards the heart, but at the point of junction, a portion of it formed a reversed current up into the vein of the embolised artery, whereby the stationary column of blood was driven slowly and gradually back through the vein into the capillaries, and even into the artery itself. When, under this steady pressure, the vascular territory had reached a certain degree of fulness, a rhythmical to-and-fro motion set in, and the observer satisfied himself that the blood-corpuscles were really driven forward by the to-and-fro motion as well as by the steady pressure that preceded it. After a few hours, this region had assumed a dusky red colour, and after one or two days it showed itself to the naked eye as a dark-red sharply defined wedge, beside which the rest of the tongue was markedly pale. When the organ was stretched out and examined under the microscope, the aggregate vessels of the wedge-shaped segment were seen to be densely filled with closely packed red corpuscles, which, in the capillaries, had lost their individual contour. All the other tissues within the segment remained unchanged; the epithelium was normal, the ciliary movements uninterrupted, and only a few of the muscular fibres showed a slight change.

Up to this point, the effect of an embolon has been seen to be a steady filling up (*Anschöppung*) of the vascular territory behind it, and so far the process is intelligible. But after the *Anschöppung* has lasted for some time, a new phenomenon appears, viz., hemorrhage. Along the sides of the capillaries, numerous red corpuscles are seen to mass themselves, obscuring the outline of the vessels, and in some cases completely surrounding them. Where the capillaries lie close together, the red corpuscles agglomerate to form a heap which can be recognized as a hemorrhagic point by the naked eye; at some points of the capillary wall the number of corpuscles is greater than at others. What is usually seen is that, at certain points, large numbers of red corpuscles slip out of the capillary, generally slowly, one after the other, sometimes more quickly, and collect into a mass. At those points, the condition of the capillary wall was in no wise different from that of the wall at other points, and no part of the whole vascular territory showed the slightest morphological change, even under the highest magnifying power, neither in the capillaries nor in the smallest veins, which are also the seat of small extravasations. The final result of this escape of blood (*Blutaustretung*), which may go on for several days, is that the blood within the dark-red wedge previously described is now located not only in the vessels, but also in the tissues, and so there results what we have long known as a "hemorrhagic infarct."

Not satisfied with an explanation of these escapes of blood on mechanical grounds, Dr. Cohnheim instituted a set of experiments with a view to determine whether the stoppage of the circulation within a vessel did not produce an effect upon the physiological soundness (*Integrität*) of its walls. To this end, he entirely stopped the circulation in the frog's tongue by putting a ligature round it bodily at its root. On the stoppage of the circulation, the tongue remained pale or red, according as it was much or little injected with blood at the moment of ligaturing, and the relative colours of the venous and arterial blood remained unchanged. If the ligature remained on for some time, the corpuscles underwent certain changes, but no morphological change was observed in the walls of the vessels. The epithelium, the ciliary movement, and the muscular fibres were all more or less affected according to the duration of the ligature, but no changes were made out in the nerve-fibres nor in the connective-tissue corpuscles. The functional condition of the vessels was then tested by removing the ligature. If the ligature had remained on for only

twenty-four hours, the circulation soon regained its normal character, the vessels having first dilated and then contracted to their usual calibre. But on the removal of a forty-eight hours' ligature, the phenomena were entirely different. The circulation recommenced without much difficulty, and the vessels dilated; but only the arteries returned to their normal size, the veins remaining dilated. The circulation in them became slower, the white corpuscles collected along the sides, and in a short time the observer could see a copious emigration of them from all the small and medium-sized veins. In the capillaries, there was a limited "diapedesis" of red corpuscles. If the ligature had remained on for sixty hours or thereabouts, the "diapedesis" or hemorrhage from the capillaries became abundant. If the tongue remained ligatured till the fifth day, the circulation did not re-establish itself at all, and the organ became gangrenous. These results were confirmed by experiments on the lungs and mesentery of the frog, on the rabbit's ear, on the testicle of the dog and guinea-pig, and on the intestine and kidney. Other striking experiments demonstrated that the escape of blood was probably not at all dependent on the nerves, nor on the altered condition of the blood itself; and Dr. Cohnheim concludes that the arrest of the circulation within a vascular territory has such an effect upon the functional soundness of the walls of the vessel, as will account for the escape of blood that was observed in the previous experiments with the embolon. The filled condition (*Anchoppung*) of the vessels behind the embolon passes into a real infarction, by reason of the change which the vessels and, above all, the capillaries undergo in the interval, in consequence of the arrest of their regular blood-current.

In the second half of his monograph, the author applies the results determined by his experiments to explain the occurrence of infarction in the various organs of the human subject, and, in the case of embolic abscess, the causes that determine the specific rather than the mechanical action of an embolon.

Our abstract has necessarily omitted many of the collateral points made out in the research. The entire work may be recommended to English readers, not only for the important facts that it determines, but also for the very complete application of the inductive method that it exemplifies.—*British Med. Journ.*, Nov. 16, 1872, from *Untersuchungen über die Embolischen Processe*, Berlin, 1782.

21. *Contagiousness of Phthisis*.—Dr. RICHARD PAYNE COTTON, Senior Physician to the Hospital for Consumption, etc., Brompton, whose opinions, from his opportunities for observation, are entitled to great weight, discusses (*Brit. Med. Journal*, Aug. 31st, 1872) the very important practical question whether consumption is or is not contagious, and he strongly maintains its non-contagiousness. He believes phthisis "to be a purely constitutional disease, which may be either inherited or acquired, but which, from its very nature, is incapable of being conveyed from one person to another in the ordinary sense of the word contagion. I have, indeed, never met with a case of pulmonary phthisis, however apparently due to a contagious origin, which could not be much more easily and rationally accounted for by generally recognized causes, than by the doctrine of specific and contagious influences."

"Upon the question of contagion, however," he adds, "practical evidence is of far more value than anything speculative; and as a great experiment upon the zymotic character of phthisis has long been going on at the Consumption Hospital, I shall briefly give the results.

"The Consumption Hospital was opened in the year 1846, with ninety beds. Ten years later, it was completed; and since that time, two hundred beds have been constantly occupied. We have lost, during this long period, only one nurse from phthisis; and this was a poor creature whose husband had deserted her, and who had long endured, from other causes also, considerable mental anxiety and physical exhaustion. On the other hand, the services of the nurses generally have been unusually prolonged; and I can myself testify to their general health being, as a rule, remarkably good. Of those now resident, two have been at duty in the hospital seventeen years: one has resided thirteen years; one, eleven years; two, ten years; two, nine years; one, seven years;

one, four years; two, three years; and four, two years. The two oldest nurses have lately died of old age and general decay, after having long been superannuated; each of these had resided in the hospital for upwards of twenty years.

"Of the gallery maids, whose duty it is to be much within the wards in sweeping and scrubbing the floors, only one has been known to have been affected with phthisis; whilst it is obvious that, during so long a period, the numbers of persons thus employed must have been considerable.

"Our engineer has seen eighteen years' duty within the hospital, and he is now in good health.

"We have had, at different times, three attendants in the *post-mortem* room. The first of these is still living, but in infirm health, the result of intemperance; the second left with spinal disease; the third has been in his office for nearly four years, and is in good health.

"Of the dispensers, one who kept to his post for above ten years is living, and well; three who have held office in the dispensary since the year 1867 are also well; and the present senior dispenser has been with us for ten years. Many others have been in this department since the opening of the hospital, but only one has been known to have been consumptive.

"The resident clinical assistants, of whom we are able to obtain reliable information, amount to seventy-eight in number. Three of these are said to be phthisical; but only one has been known to have died of phthisis. This gentleman I knew intimately; he was always of consumptive appearance, and one of his sisters had died of phthisis.

"Our resident medical officer, Mr. Edwards, to whom I am indebted for the statistics I am now giving, has held office for more than twenty-one years; and all those who know him can testify both to his continued health and his undiminished energy and usefulness. The present matron has also been in her office for more than twenty-one years, during which long period her health has been excellent.

"The present secretary has been at his post for fifteen years; and his only predecessor, who is still alive and well, had held the same office for sixteen years. The assistant secretary has been at his duties within the hospital for eighteen years; and a clerk—whose office it is to register the out-patients, and who must, on that account, be exposed to an unusually great extent to phthisical contagion, did such exist—has been at his work for five years. I am happy to add that all of the above are now in excellent health.

"The present chaplain has been with us for twenty-two years; and his two predecessors are still living. Happily all of them are well.

"Of the staff of physicians and assistant physicians—nineteen in number—one only has been affected with phthisis; and he was a young man of delicate and decidedly consumptive aspect. The period of office which some of us have had is unusually long. Of the present physicians, two have been upon the staff twenty-four years each: one for seventeen years; one for thirteen years; one for nine years; and one for five years. The late senior physician, who resigned only three years ago, had been attached to the hospital, and in constant work there, from its very foundation. Two of the former physicians who resigned their appointments, and subsequently died of disease quite distinct from phthisis, had held office in the hospital for fifteen and nineteen years respectively."

22. *Morbid Effects of Alcohol as shown in Persons who Trade in Liquor.*—This is the title of a paper read before the Royal Medical and Chirurg. Soc. (Oct. 22, 1872) by Dr. W. H. DICKINSON, which the author offered as a contribution to the morbid anatomy of alcoholism founded upon a comparison of *post-mortem* appearances between persons trading in liquor and persons occupied independently of it, and not known to have been drunken. The assumption that people who get liquor for nothing drink more than those who have to pay for it, is, the author said, justified by the common tendency of mankind, as well as by the notorious inebriety and liability to delirium tremens of potmen, waiters, cellarmen, draymen, brewers, barmen, and publicans—the chief members of the liquor-trading class. The paper is based upon an analysis of the

post-mortem and case books of St. George's Hospital for a period of thirty years. This comprised the particulars of the examination of the bodies of 149 traders in liquor. For comparison, there were taken from the same source the same number of examinations of persons otherwise and very variously employed, chosen by rule so as to afford a fair standard. The full details were tabulated and laid before the Society. Tabular abstracts, representing the condition of each organ in the two classes, were incorporated in the paper.

The general conclusions of the inquiry were summed up by the author as follows:—

"Alcohol causes fatty infiltration and fibroid encroachment; it engenders tubercle, encourages suppuration, and retards healing; it produces untimely atheroma, invites hemorrhage, and anticipates age. The most constant fatty change, replacement by oil of the material of epithelial cells and muscular fibres, though probably nearly universal, is most noticeable in the liver, the heart, and the kidney. The fibroid increase occurs about the vascular channels and superficial investments of the viscera, where it causes atrophy, cirrhosis, and granulation. Of this change the liver has the largest share; the lungs are often similarly but less simply affected, the change being variously complicated with, or simulative of, tubercle; the kidneys suffer in a more remote degree. Alcohol also causes vascular deteriorations which are akin both to the fatty and the fibroid. Besides tangible atheroma there are minute changes in the arterial walls, which show themselves by cardiac hypertrophy and cerebral hemorrhage. Drink causes tuberculosis, which is evident not only in the lung but in every amenable organ. Drink promotes the suppurative at the expense of the adhesive process, as seen in the results of pneumonia, of serous inflammations, and of accidental injuries. Descending from general conditions to the individual organs, the effect of alcohol upon the nervous system must be looked upon as special, and taken by itself. Apart from changes which, like delirium tremens, are more evident during life than after death, the brain pays a large reckoning in the shape of inflammation, atrophy, and hemorrhage. With regard to the other organs, they are damaged by alcohol much as they stand in its line of absorption. Next to the stomach the liver suffers, by way of cirrhosis and fatty impregnation. Next the stress falls upon the lung, taking every shape of phthisis. A large share in the pathology of intemperance is also taken by the arterial system, as seen in its results—atheroma, cardiac hypertrophy, and hemorrhage. Lastly, the kidneys, more remotely exposed, have a smaller participation in the common damage of alcoholism. They undergo congestive enlargement, fatty and fibroid change, but they do not suffer commensurately with the bloodvessels, or as frequently as the other viscera.

"So far we have seen only the ill which alcohol produces. It may be asked, Is there none which it obviates? Apart from its medicinal action, which the evidence before us does not touch, has it no *per contra* of prevention? It is not easy to answer this inquiry. Some active inflammations, such as pneumonia and endocarditis, are diminished in the alcoholic trades; but it must at once be seen that the increase of the alcoholic disorders must necessarily cause an apparent diminution in all which are unaffected by this agent. A man may be saved from pneumonia or acute rheumatism, not because alcohol is antagonistic, but because it kills him prematurely in another way. He can die but once. Therefore, though under alcohol some forms of disease are comparatively infrequent, we must use much caution in concluding that it has a directly preventive influence. Nevertheless, it may be laid down as an axiom that any drug which can do harm can do good. Disease is most various, and may, or rather *must*, represent contrary conditions. It may be positive or negative, plus or minus. Too much or too little of any of the shapes of heat, food, and work, may spoil the equipoise of health. If a drug promotes one change, it may prevent its opposite. Alcohol certainly gives an asthenic type to disease. Although we cannot as yet say that it defibrinates, yet it retards adhesive and plastic processes. This influence may be beneficent if it hinders the development of acute inflammation, and obviates the formation of coagula where, as in acute rheumatism, the process is harmful. It is possible that by some such antagonism we may explain the remarkable paucity of endocarditis

in the alcoholic series. But, at the best, the protecting is less certain and less effective than the deteriorating influence. In brief and final enumeration, alcohol replaces more actively vital materials by fat and fibrous tissue; it substitutes suppuration for new growth; it promotes caseous and earthy change; it helps time to produce the effects of age; and, in a word, is the genius of degeneration."

Dr. ANSTIE said that the paper contained facts of high interest, but which required consideration as to how far the number of cases warranted the conclusions; those cases only having been included where alcohol had been taken in excess, and thus a large number of persons subject to chronic alcoholism have been included. He did not agree with the conclusion as to the suppurative form of inflammation being the more common. With regard to the frequency of cirrhosis, Dr. Anstie would say, from his experience of over thirteen years, in which he had seen a large number of patients suffering from the effects of chronic alcoholism, that it was rarely met with; he had only seen thirteen cases in which there were symptoms of cirrhosis, though some of the patients had been under observation for ten years. He agreed with the prominence given to nervous change and symptoms; they were always in advance in the effects of alcohol. It was interesting to note how frequently inflammatory changes, such as slight attacks of inflammation of the brain, occurred, with delirium and convulsions, and from which the patient recovered. He thought the effects of alcohol, long continued, tended to the fibroid form of phthisis. He was pleased to see that the tables showed that kidney disease on a large scale was not increased by alcohol; this had been shown by statistics collected in Glasgow. He believed the notion arose from false ideas of the elimination of alcohol by the kidneys—too much work was thrown upon them, so causing degeneration.

23. *Artificial Production of Epilepsy.*—At one of the late meetings of the Société de Biologie, M. BROWN-SÉQUARD communicated to the Society the results of experiments he had made to determine the path pursued by irritation of the sciatic in order to reach the upper part of the spinal cord and to produce epilepsy. Section of the sciatic nerve near its origin, and, still more, the forcible ablation of the nerve, are constantly followed by epilepsy. Nevertheless section of the spinal cord immediately above the origin of the sciatic nerve does not produce epilepsy. This unexpected fact gives rise to the suspicion that the occurrence of epileptic symptoms is not due to the section of the fibres of the sciatic nerve proper, but rather to the section of the fibres of the sympathetic which unite themselves to the sciatic after its emergence from the spinal cord. M. Brown-Séquard naturally thought it would be interesting to divide the several sympathetic branches that pass to the sciatic; but, unfortunately, this is extremely difficult to accomplish. Division of the great sympathetic in the abdomen produces only transient effects—incipient symptoms, as it were, of epileptic attacks, but nothing positive or definite. On the other hand, section of the roots of the last dorsal and first lumbar nerves produces epileptic attacks, and it is known that these roots furnish sympathetic filaments to the sciatic nerves. From all this M. Brown-Séquard concludes that it is to section of the sympathetic that we must essentially attribute the artificial production of epilepsy.—*Lancet*, October 5, 1872.

24. *Pathology of Cerebral Hemorrhage.*—Dr. ZENKER, of Erlangen, in a communication made to the last meeting of the Society of German Naturalists and Physicians, confirms in its essential points the statement made several years ago by Charcot and Bouchard, and by Charlton Bastian, that the disposition to cerebral hemorrhage consists in the formation of minute aneurisms. Having examined all the cases of spontaneous cerebral hemorrhage that have come under his notice during several years, Dr. Zenker in every instance found milia aneurisms, both in the wall of the hemorrhagic deposits, and in other parts of the brain. They appear to the naked eye as little fluctuating tumours as large as a pin's head (rarely larger), and assume all the ordinary forms of aneurism. Usually the inner coats of the vessel give way, and a dissecting

aneurism is formed. The disease may remain at this stage for some time, or there may even be recovery, a small pigmental mass being left. In other instances, all the membranes burst, and hemorrhage into the brain takes place.

As to the origin of these minute cerebral aneurisms, Dr. Zenker does not entirely agree with MM. Charcot and Bouchard. These observers have called in question the dependence of these aneurisms on atheromatous degeneration; Zenker, however, is convinced that they have their origin, just like aneurisms of the larger vessels, in atheromatous disease of the inner coat of the arteries. These minute aneurisms may indeed be present, without any evident sign of disease in the arteries at the base of the brain. On microscopic examination, however, of the aneurisms and of the arterial twigs on which they are seated, the inner coat is found to present changes corresponding to the uneven thickening which occurs in atheroma of the larger vessels. Thus the researches of Charcot and Bouchard do not subvert the old doctrine of the dependence of cerebral hemorrhage on vascular degeneration, but give it an important confirmation.—*Brit. Med. Journ.*, Nov. 9, 1872.

25. *Aphasia immediately following Paracentesis Abdominis.*—Dr. GILLETTE records (*L'Union Médicale*, Sept. 24, 1872) a curious case of this observed by him in the wards of M. A. Guérin at l'Hôtel-Dieu. The subject of it was a woman æt. 45, whose abdomen was largely distended by serous effusion resulting from disease of the liver. The trocar was inserted in the left side on the 4th of April, 1872, and the fluid evacuated, and M. G. then applied compression by means of wadding and a bandage. Notwithstanding this precaution the patient was seized a few moments after the operation with complete aphasia and hemiplegia of the right side. When seen by Dr. Gillette nearly five months afterward, the patient appeared very intelligent, and evidently understood questions put to her, but could not reply. Her power of speech, which at first was entirely extinct, had slightly returned, but within very restricted limits. She had not lost her memory, and replied correctly, affirmatively or negatively, to questions by motions of her hand. She had recovered from the paralysis of the right lower limb, but, though the right upper limb retained its sensibility, she had no power of motion with it; on the contrary, it is strongly contracted; the fingers are so flexed that the nails have made their imprint on the palm, and every effort made by others to extend her fingers gives her extreme pain.

26. *Spinal or Essential Palsy of Children.*—M. ROSENTHAL, in the fifty-second number, 1871, of the *Oesterreich. Zeitschr. f. Prakt. Heilkunde*, observes that atrophy and malformation of the anterior cornua of the spinal cord, as first pointed out by the French pathologists, are the chief pathologico-anatomical alterations met with after death in the so-called spinal paralysis of children. According to M. Rosenthal, the atrophy of the nerve cells of the gray substance is not so much the primary morbid change, as the enlargement and thickening of the bloodvessels observed by him, signs of an active participation of the latter, in the diseased action going on, a pathological process which in its progress becomes the cause of the waste, or even entire destruction, of the gray substance of the brain. In opposition to the view of Duchenne, M. Rosenthal has observed that improvement may take place in the motility of the paralyzed muscles, even though the lost Farado- and galvanic excitability of the muscles be not again restored.

Within the first six to nine months from the commencement of the attack, and hence beyond the eventual failure of the electrical excitability of the muscles, still is the prognosis not to be considered unfavourable.

In two cases of the essential paralysis of children reported by Damaschina, there was likewise evident lesion of the vessels of the anterior cornua of the spinal cord. It would appear that the last-named gentleman, as well as Duchenne, is inclined to view this abnormal condition of bloodvessels as the primary cause of the paralysis.—*Centralblatt f. d. Med. Wissenschaften*, No. 11, 1872.

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27. *Convulsive Phenomena in Diseases of the Spinal Cord.*—In an interesting monograph devoted to the above subject, Dr. HALLOPEAU, of Paris, thus sums up various suggestions for treatment:—1. Oppose the transmission of centripetal excitation (especially by means of sulphate of atropia). 2. Oppose the transmission of centripetal irritation (by constant electric currents, as recommended by Mendel). 3. Lower the excito-motor power of the cord (bromide of potassium, ergot of rye, and the ether spray along the spine).—*Lancet*, October 5, 1872.

28. *Traumatic Jaundice.*—Professor VERNEUIL, of Paris, in a paper recently read to the Academy of Medicine, sets down the following conclusions in connection with traumatic jaundice:—1. Jaundice may supervene after a traumatic lesion bearing upon the liver itself or some other organ more or less distant from the liver. 2. In the first case it is traumatic jaundice, properly called a direct jaundice; in the second, indirect traumatic jaundice. 3. This last sort includes two varieties, clearly distinguished by the causes, course, prognosis, and pathogeny of the disease. 4. The first variety, or pyohæmic jaundice, is a symptom of purulent infection, and is caused by septicæmic alteration of the blood, with or without metastatic gatherings; the second, or reflex non-pyohæmic jaundice, is due, without doubt, to a perversion of the nervous action. 5. Direct traumatic icterus and pyohæmic icterus do not imply any previous alteration of the liver. On the contrary, an anterior organic lesion of this gland seems to be a necessary predisposing condition to the production of reflex traumatic icterus. 6. The diagnosis between the three varieties is often easy. For the first, it is enough to state the direct or indirect lesion of the liver. For the second, there exists the symptomatic accompaniment of pyohæmia. For the third, the circulatory system and the thermometer must be consulted. 7. Though the prognosis of icterus consequent upon wounds is a serious one generally, yet it varies much according to the nature of the complication. 8. The gravity of direct traumatic icterus will depend upon the disturbance brought on in the liver by the wound. Reflex icterus seems benign enough, except in those cases where the anterior lesion of the liver is of a serious character. 9. Reflex icterus does not seem to modify unfavourably the course of the healing process of the wound. 10. Reflex jaundice belongs to the great class of distant traumatic "deuteropathies." It constitutes one of the rarest forms of this class of disease, if we are to judge from the limited number of cases on record.—*Lancet*, October 5, 1872.

29. *Asiatic Cholera.*—Dr. C. MACNAMARA, in an interesting paper (*Indian Med. Gaz.*, Sept. 2, and Oct. 1, 1872), gives a table, prepared by his assistant, of cases of cholera under his care, which illustrates, among other things, the fact that the left side of the heart, immediately after death from cholera, is as full of blood as the right. It also illustrates, clinically, the relation between the loss of weight of a patient suffering from cholera and the amount of vomiting and purging, and seems to indicate that it is not those patients who continue to vomit and purge frequently in cholera that recover, but, on the other hand, that those who rapidly lose weight, or, in other words, who are constantly being purged, most often succumb to the disease. This table shows that the more rapid the loss of weight, the more sure the death of the patient, and that in some cases a patient, suffering from cholera, may lose as much as thirty pounds in weight in the course of a few hours.

On post-mortem examination of a case of cholera, Dr. M. states: "We found the greater part of the mucous membrane lining the small intestines, covered with a glutinous, semi-opaque mucus-like matter; patches of this glutinous lining of the intestines had disappeared, leaving the deeply scarlet villous surface of the membrane exposed. On placing some of this mucus-like matter under a one-eighth of an inch object-glass, I found that it consisted principally of cylindrical epithelial cells embedded in a glutinous material. These cylindrical epithelial cells, examined immediately after death, afforded us a favourable opportunity for demonstrating the formation of the 'cholera cell' of Drs. Parkes and Lewis from the cylindrical epithelium. . . . I need hardly remind

the reader that Drs. Lewis and Cunningham assert that cylindrical epithelial cells are seldom to be discovered in the stools of cholera patients: and upon these observations a writer in the *Lancet* recently declared that we must abandon our ideas regarding the denuded condition of the mucous membrane in cholera being due to anything more than post-mortem changes; for, if the epithelial cells were shed during life in quantities similar to that found after death in the intestines, they must have been passed in the stool, which is not the case. I can only answer this argument by a counter-statement, to the effect that vast quantities of cylindrical epithelial cells are to be found in the stool first passed by patients suffering from cholera, but that, as the disease advances, the hyaline or cholera cells above described, and which are a production of the cylindrical epithelium in a very great measure, take the place of the cylindrical cells. It is very difficult to demonstrate this fact in cases of cholera, for, if the patient has remained in collapse for some time, the active changes in the epithelial cells cease, and beyond this we must operate on very fresh specimens, if we would satisfactorily demonstrate the changes I am about to describe in the cylindrical cells lining the small intestines. We should, therefore, if practicable, induce a condition of the mucous membrane in the lower animals, similar to that which occurs in man when suffering from cholera; and, so far as our present purpose is concerned, arsenic in poisonous doses excites changes in the intestinal epithelial cells, similar to those observed in the human subject after death from cholera. The accuracy of my statements may consequently be verified by any one accustomed to work of this description."

Dr. M.'s assistant has carefully noted the changes in the intestinal epithelium of a dog, poisoned by arsenic, and confirms the above statement.

In the case under consideration Dr. M. says, the epithelia found in the glutinous lining of the mucous membrane showed in numerous places evidences of change similar to that observed in the dog poisoned by arsenic, but Dr. M. could discover "only a few hyaline cells in this mucus-like material. On the other hand, in the fluid contents of the small intestines, multitudes of hyaline cells, with epithelia in an active stage of metamorphosis, were discovered, the truth being that the rapid formation of the *cholera cells* goes on towards the free surface of the lining of the intestines, and particularly in certain spots from which the epithelial cells had been completely detached (necrosed), leaving the engorged and denuded villous coat exposed to view. The hyaline cells in cholera thus float away with the *débris* of the epithelia in the watery stools; and after death, or if collapse has lasted for some time before death, the extreme contraction of the dehydrated walls of the intestines detach the epithelia imbedded in the glutinous-like matter from the surface mucous membrane, and these cells are consequently found free in the intestinal canal in much larger quantities than if the case has terminated rapidly, as in the present instance, and the post-mortem been made immediately after death; nevertheless, the fact remains that a man attacked by fatal Asiatic cholera passes within a few hours from a state of health to a condition in which the entire surface of mucous membrane, from mouth to anus, is involved in changes such as I have described in this case."

30. *Hydatid Cyst of the Right Kidney simulating Ovarian Cyst*.—Dr. N. LONGUET presented to the *Société Anatomique* of Paris the notes of a case of this.

The patient had been considered during several years to be affected with an ovarian cyst, when she became pregnant, and was brought to bed on the seventh month, after a fall she had. On the 6th ult. she entered the wards of La Charité. The abdomen, which had swollen rapidly, then showed the appearance due to an ovarian cyst. On examination, the existence of adhesions was suspected; ovariotomy discarded, and puncture decided on as a possible procedure. But on the 15th the abdomen took a round shape, and became sonorous. All the symptoms of peritonitis supervened. The patient died, and at the post-mortem examination the ovaries were found perfectly healthy. The right kidney was quite sound; but in the left iliac fossa was discovered a ruptured cyst,

which had developed at the expense of the left kidney. No urinary troubles had ever been noticed during life.—*Mouvement Médical*, Nov. 9, 1872.

31. *Bronzed Colouration of the Skin*.—Prof. BÉHIER maintains that the connection which Addison observes between a special form of asthenia, alteration of the supra-renal capsules and bronzing of the skin, and in the combination of which he recognized a new disease, is far from being clearly established. He shows that alteration of the capsules and asthenia may coincide without any alteration of the skin, and also bronzed skin may be observed without alteration of the supra-renal capsules, also that disease of the capsules may occur without alteration of the skin. He shows that the most frequently observed lesions in the supra-renal capsules are those commonly considered scrofulous or tuberculous, and with these the bronzed skin may be wanting. He also maintains that the general conditions and symptoms which have been attributed to the so-called Addison's disease are variable and uncertain. He argues that, inasmuch as the normal anatomy and physiology of the supra-renal capsules are at present not well known and doubtful, it is impossible to assess the pathological value of the alterations which these organs undergo and of their symptomatology, especially as their pathological manifestations are inconstant. Whilst, therefore, he allows that the phenomena of bronzed skin and capsular disease are worthy of careful study, he denies that the problem has been solved by Addison. The supra-renal capsules are not the *point de départ* of the altered colouration of the skin. M. Landois thinks that bronzed colouration is a symptom which may be met with in all cachexias, that it is only a result of the local transformation of the epithelium—a particular instance of functional disturbance. The objections to this opinion are that bronzed skin is rare in individuals affected by the cancerous, tuberculous, and other cachexias. But M. Béhier agrees with Landois that the bronzed malady is not a well-established and defined morbid entity.—*Brit. and For. Med.-Chir. Rev.*, Oct. 1872, from *L'Union Médical*, April 18 and May 2, 1872:

32. *Idiopathic Development of Pigmentous Sarcomata of the Skin*.—In contrast with that form of pigmentous sarcomata of the skin, which are evidently metastatic (consecutive), KAPOSI (*Archiv f. Dermatol. u. Syph.*, IV. 2, 1872), has given the history of five cases, in which the sarcomata were developed idiopathically. The essential features, exhibited by these idiopathic cases, were the appearance on the skin, without any apparent exciting cause, of nodules of the size of a hazelnut, of a brownish or blackish colour; flat at their upper surface, and of a firm, elastic feel. They appear first on the soles of the feet and insteps, then upon the hands, subsequently upon the arms, legs, face, and trunk. The nodules in part become atrophied and disappear; while others give rise to a gangrenous ulceration. In a later stage of the complaint, similar nodules appear upon the mucous coat of the larynx, trachea, the stomach and intestines. The complaint generally terminates fatally in between two and three years. It is a remarkable circumstance that the lymphatic glands were in all the cases recorded free from disease.—*Centralblatt f. d. Med. Wissenschaften*, Aug. 17, 1872.

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33. *Contributions to the Therapeutics of Diabetes Mellitus*.—Dr. BALTHAZAR FOSTER in an interesting paper (*Brit. and Foreign Med.-Chir. Rev.*, Oct. 1872) gives the results of investigations made by him to determine the effects of remedies in controlling the excretion of sugar in diabetes mellitus. Six drugs were experimented with, and the conclusions which the study of the cases seem to justify as to the influence exercised by each drug are detailed.

The peroxide of hydrogen was given in two cases. It had little or no influence in diminishing the sugar excretion. In the one case in which the sugar and water fell, the skin acted most copiously, and the perspiration contained a large quantity of sugar. The improvement in the state of the urine was, no doubt, due to this second channel of elimination. In other cases, not here recorded, the remedy has failed me.

*The liquid extract of ergot* was given in four cases, one of which was complicated by extensive lung and kidney mischief. The ergot was given on the hypothesis that it might lessen the congestion of the abdominal viscera. The effects observed to follow the use of ergot were—(1) decrease in the quantity of urinary water, (2) slight decrease in the quantity of sugar, (3) slight fall in the specific gravity of the urine. The decrease in urinary water I have also observed in cases of diabetes insipidus, as well as in other cases of true diabetes.

*The potash salts* were given in succession to the same patient. The results show that they have no power of diminishing the quantity of urine or the amount of sugar. In other cases I have obtained similar results with alkalies, and have never observed any beneficial effects from their use in diabetes. It is worthy of note that in neither case was the acid reaction of the urine neutralized, although the urine is twice noted as being only faintly acid.

*Opium* was given to the same patient after the potash salts. The quantity of water fell, the specific gravity remained very stationary, and the quantity of sugar was lessened. The patient, however, improved manifestly out of proportion to the diminution of the sugar, an improvement which I have noticed in other cases under opium, when the sugar diminution has not been great, and which I am inclined to attribute to the influence of the opium in lessening the urea excreted. In the case here recorded the urea fell in the course of ten days nearly 120 grains. The opium in this case did not act nearly as well as it does in some cases.

*Bromide of potassium* in combination with tr. ferri perchloridi was given in two cases. This combination I have found much more useful in diabetes than the bromide alone; I have, however, only found it beneficial in mild cases. In such cases it seems to have some slight influence in diminishing the amount of water and checking the craving after food. This latter is its chief recommendation.

*Lactic acid* was given in four of the cases, and in one case combined with skim milk. In three of the cases the lactic acid was given in small doses, not exceeding two drachms a day. In two of these, rheumatic symptoms were produced, the quantity of urine fell, the specific gravity was not much affected, the sugar was diminished in quantity and the patients improved. In one case the sugar was not estimated, but the quantity of urine was lessened, and the specific gravity fell slightly, while no rheumatic symptoms appeared. In one of the cases the lactic acid was given in much larger doses to the extent of 3 oz. daily. In this case no rheumatic symptoms whatever were produced. The urinary water was diminished, the specific gravity was scarcely affected, and the sugar fell slightly, rising again when the acid was discontinued. In all these cases but one the functions of the skin were restored by the lactic acid. In this way the decrease of water may be wholly or partly explained. Thirst was not diminished particularly, and the appetite was if anything increased.

The use of lactic acid in cases dieted on skim milk is illustrated by one case. In mild forms of diabetes this treatment has often succeeded in my hands. Its chief recommendation is its greater ease of application than restriction to purely non-amylaceous food.

In addition to the effect of remedies, the cases related by Dr. F. illustrate the frequency of grief as an antecedent of the disease; the frail tenure on which the life of the diabetic is held, and the slight exertion by which this tenure is destroyed; and lastly the congestion of the abdominal viscera is exemplified in the *post-mortem* of one of the cases.

The details of eleven cases are given.

34. *Hypodermic Injection of Ergotin in Internal Hemorrhages*.—Dr. DRASCHE, Physician to the Rudolf-Stiftung of Vienna, has published in some recent numbers (37-40) of the *Wiener Med. Wochenschrift* an interesting series of papers on "The Employment and Action of Hypodermic Injections of Ergotin in Hemorrhage." After advertizing to the difficulty which frequently exists in the treatment of hemorrhages that occur in the course of various diseases in the form of hæmoptysis, epistaxis, hæmatemesis, etc., he goes on to describe the results he has obtained from the employment of ergotin. This must be

regarded, he says, as the best of all haemostatic agents for hypodermic use; and so long since as 1868 he recorded in his reports on the Rudolf-Stiftung the first essays that had been made with it. Since then Langenbeck and other surgeons have resorted to it with success for other forms of disease of the blood-vessels, as aneurism and teleangiectasis, as recorded in our own pages.

Confining himself within the scope of his own observation, Dr. Drasche first gives an account of the influence of injections as observed in two persons in robust health, the experiments being continued during nine days in the one case and six days in the other. Each injection was followed by a diminution in the number of the pulse by from four to six beats, and the sphygmographic markings exhibited a simultaneous contraction of the calibre of the vessels. The temperature was slightly increased, and the respiration continued normal. No influence upon the secretion of the urine was perceptible, and the health was quite undisturbed. Each injection was followed by some local irritation, which sometimes disappeared after a few minutes, but at others lasted a considerable time. The redness which was at first caused was followed by a grayish-yellow discolouration. Half-grain doses caused hardly any colouration, while two-grain doses induced intense and extensive redness. This, too, was accompanied by tenderness and swelling, this last continuing for several days.

The great bulk of the cases of disease in which Dr. Drasche has tried this means have been examples of haemoptysis occurring in the subjects of tubercle. When this has been slight he has employed the usual haemostatics; but, when these have not succeeded, or when the bleeding has been considerable, he has resorted to the ergotin. Of nine of these cases he furnishes abstracts. The ergotin was administered in these in doses of from one grain to one grain and a half, the whole quantity employed in each case varying from one grain to seven grains and a half, and the treatment by it occupying from one to six days. On one occasion three grains and three-fifths were injected within six hours and a half. In almost all the cases local irritation was induced, but this usually soon passed away. Sometimes a circumscribed induration remained for some time, but this never suppurated. In most of these cases the efficacy of the ergotin was very prompt when other haemostatics had previously been tried without success; in others, although less speedy, it was still successful; and in one of them only did it fail. In two cases of epistaxis that are cited the effect was very speedy, and the dose required very small; and, although other means would have stopped the bleeding, none more simple could have been adopted. In a case of haematemesis the bleeding was arrested promptly after the internal administration of ergotin had been employed without any benefit. In a case of intestinal hemorrhage, occurring in typhus, the bleeding was completely arrested, but in another case it persisted. It has been used advantageously also in the hemorrhage connected with scorbutus, the amount and duration of the local irritation in these cases being considerable.

A general review of his experience with it convinces Dr. Drasche that ergotin is as efficacious as it is an easily employed remedy. In some cases its effects were so rapid and so remarkable that no doubt could possibly be held respecting them. Although if such effects are in many cases necessarily temporary, yet is the gain very considerable; and where it has been entirely without effect the extent and nature of the lesion offer the explanation. The injections, in fact, are an invaluable means when other agents have been tried without effect, or when sudden and profuse hemorrhage calls for instant action. The best vehicle for the ergotin is glycerine, and five grains to the drachm forms the most suitable proportion. A syringeful of this holds one grain of the ergotin, and, according to circumstances, the quantity may be injected once or twice a day. The entire quantity required amounted to a maximum of seven grains distributed over six days. On one occasion, however, six grains were injected within three days. The region of the pectoral muscles is the best locality for the injection. The mixture should be shaken before each injection; and this should be slowly performed, in order to avoid throwing the fluid into the cellular tissue, and inducing localized capillary hemorrhage. The subsequent handling of the injected part should be effected in the gentlest manner. More or less local pain and irritation follow each injection, and these are some-

times considerable. This sometimes depends upon the more or less intimate mixture of the ergotin with the glycerine, and the manner in which the injection is performed. Circumscribed inflammation at the injection points is also not uncommon, but the infiltration afterwards disappears. When the injections have been long continued, or have been too strong, tingling of the finger-ends and cramps of the hands are sometimes complained of.—*Med. Times and Gaz.*, Nov. 16, 1872.

35. *Case of Acute Rheumatism with Cerebral Symptoms and High Temperature, Treated Unsuccessfully by Cold Affusion.*—Dr. SOUTHEY related to the Clinical Society of London (Oct. 11th) a very interesting case of this in a well-built man aged 35, of highly nervous temperament, in the habit of drinking wine and beer, but not intemperate. This was his first attack of acute rheumatism. The rheumatic articular inflammations were not established until after he had been ailing for fourteen days, with a temperature ranging between 100° and 102.5°. The rheumatic symptoms were well marked. The invasion of several joints with swelling and redness, the tongue, the pulse, and the sweating were highly characteristic. On the eighteenth day of illness pericarditis set in, the joint-inflammation suddenly subsided, and delirium of a peculiar kind, preceded by head-pain and obscurity of vision, presented itself; the temperature now ranged between 104° and 105° in the axilla for ten days, while twelve grains of quinia, from six to ten ounces of brandy per diem, and various opiates, as well as chloral, were administered with little sedative effect. Bronchial symptoms now ensued, with great failure of power, although food and stimulants were freely taken. Delirium, akin to coma vigil, still continuing, and his temperature marking 105°, the patient was immersed in a bath quickly cooled down from 96° to 71°. The effect was immediate dissipation of delirium, with reduction of temperature to 100.5°, followed by short repose; but, the bodily temperature quickly rising again, he was maintained wrapped in a wet sheet exposed to the air of the room at 65° for an hour. After this his temperature fell and remained between 101° and 102° for two days. Some rest was now obtained, the pulmonary symptoms relieved, and respirations fell from 36 to 28 per minute. Subsequently, the wet sheet was frequently employed, on four occasions as often as three times in the twenty-four hours, with invariable relief of the delirium and subsultus. From the eighteenth day of his illness up to the fortieth, quinia was given in doses varying from twelve to twenty-four grains in the twenty-four hours, as well as brandy, from four to ten ounces, without noticeable good or ill effect. On the thirty-third day of his illness his temperature fell spontaneously to 100.5°; he was then quite rational for twelve hours, and there was a slight return of the rheumatic pains in the joints, which lasted, however, only for a few hours. The patient gradually sank with low broncho-pneumonic symptoms on the forty-second day of his illness. The post-mortem examination revealed that swollen condition of the glandular viscera ordinarily discovered after all acute febrile diseases, but no tubercle anywhere in the body, and no apparent mischief in the brain or its membranes. The author of the communication considered the case one of cerebral rheumatism, and thought that the cold water treatment had prolonged life and relieved the delirium.

Dr. WILSON FOX thought the relation of temperature to delirium exceedingly interesting. This was almost the first case of cerebral rheumatism which had proved fatal with the cold water treatment. The temperature of the patient was comparatively low for cold affusion. He considered that they had better not adopt any active treatment in these cases until they should see whether nature was to prevail and the temperature fall of its own accord. We often see cerebral symptoms come and go with low temperature; and, on the other hand, we often have high temperature and no delirium. He thought it better, in such cases, to wait until there was a high temperature—say 107°—before applying the cold water. Cerebral symptoms did not of themselves threaten a fatal issue; no more did a temperature of 105°. He would wait until a temperature of 106° was passed, or even 107°. There were no deaths recorded under 109°, and a temperature of 106.5° had been recovered from naturally. Bronchial

complications did arise after cold water, but they might arise from the high temperature itself. He felt some little doubt of the propriety of using cold water in typhoid till after the study of the records, which showed that bronchial complications occurred as frequently without it.

He said we had yet a good deal to learn with regard to the use of cold in such cases. There seemed to be two kinds of them. In one the reduction of temperature followed immediately on the bath, and was permanent; in other cases there was a long-continued attack of fever, requiring long-continued bathing. In these he would only use cold as a means of treating hyperpyrexia, leaving the disease to run out, or act on it by other remedies. If the high temperature returned, it might be well to wait to see if it would fall of its own accord.—*Med. Times and Gazette*, Oct. 19, 1872.

36. *Tic Douloureux treated by Local Application of Ice.*—W. WINTERNITZ, according to the *Centralblatt f. d. Med. Wissenschaften*, No. 30, 1872, states that, at the advice of a colleague, he treated, by the local application of ice, an obstinate case, in a female, of neuralgia of the right side of the face, which had resisted all the various remedies that had been perseveringly employed. A piece of flat, smooth ice was applied to the entire painful side of the face, for five minutes at a time, at first at short intervals, gradually prolonged. The painfulness of this procedure may be lessened by the patient holding in the mouth a portion of some alcoholic fluid, which causes a glowing sensation in the cheek. After twelve hours the pain in the lady's face had disappeared, and had not returned during the ten months which had elapsed at the date of Dr. W.'s report.—*Mittheilungen des Aerztlichen Vereins Wien.*, Bd. V. No. 7, 1872.

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37. *Hypodermic Injection of Quinia in Heat Apoplexy.*—Mr. A. R. HALL, Assistant Surgeon Royal Artillery, states (*Indian Med. Gaz.*, Sept. 2, 1872): “I think that all the well-known symptoms of heat apoplexy are produced by intense nervous exhaustion, and that it is a pathological condition closely allied to the secondary fever of cholera. I have seen the utmost benefit result from the hypodermic injection of quinia in insolation, where actually moribund patients have been saved by it. I would employ the same remedy in the secondary fever of cholera. In the number of the *Indian Annals of Medical Science* for March, 1870, I brought forward the theory that in the collapse of cholera there is very great irritation of the sympathetic nervous system. I recommend for that condition the hypodermic injection of pure sedatives.” Mr. H. thinks that in the hypodermic injection of quinia we have the remedy for heat apoplexy.

38. *Treatment of Snake-bite.*—Dr. FAYRER in his magnificent work on the *Thanatophidia of India* shows the utter inutility of the so-called antidotes against the bite of poisonous Indian serpents, and summarises as follows all he thinks can be done in cases of this kind:—

“Apply at once a ligature or ligatures at intervals of a few inches, as tight as you can possibly tie them, and tighten the one nearest to the wound by twisting it with a stick or other such agent. Scarify the wound and let it bleed freely. Apply either a hot iron or live coal, or explode some gunpowder on the part, or apply either carbolic or some mineral acid or caustic. Let the patient suck the wound whilst you are getting the cautery ready, or if any one else will run the risk let him do it. If the bite be on a toe or finger, especially if the snake has been recognized as a deadly one, either completely excise or immediately amputate at the next joint. If the bite be on another part, where a ligature cannot be applied, or, indeed, if it be on the limbs above the toes or fingers, cut the part out at once completely. Let the patient be quiet. Do not fatigue him by exertion. When or even before symptoms of poisoning make their appearance give eau de luce, or liquor ammoniæ, or carbonate of ammoniæ; or, even better than these, hot spirits and water. There is no occasion to intoxicate the person, but give it freely, and at frequent intervals. If he become low, apply sinapisms and hot bottles, galvanism, or electro-magnetism over the

heart and diaphragm. Cold douches may also be useful."—*Brit. and For. Med.-Chir. Rev.*, Oct. 1872.

39. *Treatment of Snake-poisoning by Artificial Respiration.*—Dr. J. FAYRER, who has so frequently experimented with snake-poison, writes to the *Indian Med. Gaz.* (Oct. 1, 1872), that since his return to England he has made some further observations on the action of cobra-poison.

"In the third experiment—the most interesting—a large, vigorous fowl was poisoned by injection of a couple of drops of the poison, diluted with water, into the thigh; it evinced the usual indications of poisoning, fell over with its beak resting on the ground, and went into convulsions—the comb and wattles becoming quite livid. At this stage the trachea was opened, a tube introduced, and artificial respiration commenced; as the blood became aërated, the lividity of the comb and wattles gave place to a bright florid tinge, and the convulsions ceased.

"On ceasing to inflate the lungs, the comb and wattles became livid again, and the convulsions recurred.

"This was repeated many times, always with the same result, until the artificial respiration was stopped, when convulsions due to non-aërated blood (asphyxia) closed the bird's existence.

"This seems to indicate the possibility of life being preserved, if respiration could be kept up long enough to allow of the elimination of the poison by natural, *aided* by artificial means. Whether the injury done to the nerve-centres by the presence of the poison be of such a nature as to be irremediable, I cannot say (in severe bites I should fear it is); but evidently from this experiment, which I hope to repeat, benefit may be hoped for from artificial respiration; and I beg of you to notice this, that those who have the opportunity in India may repeat the experiment and test its efficacy further."

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## SURGICAL PATHOLOGY AND THERAPEUTICS, AND OPERATIVE SURGERY.

40. *Facial Carbuncle.*—This disease is happily a rare one, but still sufficiently common to have attracted the attention from time to time of several surgical authorities abroad. Its importance leads the Editor of the *Lancet* (October 5, 1872) to make a few remarks. "There is no means of distinguishing, in the initial stages, between the simple and benign kinds of furunculoid inflammation of the face, and that highly dangerous and often fatal form to which we are now referring. The affection commences most frequently by far, but not exclusively, in the neighbourhood of the upper lip, as a vesicle or pimple which, in the course of a few days, from solid oedema, develops into a large dusky-red induration. Its growth is attended with extreme pain, and leads to great deformity of the features. The areolar tissue becomes disintegrated, and, as in ordinary carbuncle, pus is also a product in an advanced state of the disease. A short and clear account of facial carbuncle, from the pen of Mr. Thomas Smith, is contained in the fifth volume of Holmes's *System of Surgery*. One of the earliest writers in this country to call attention to it was Mr. Harvey Ludlow, who, in common with others that saw some of the cases which he described, decided against the disease being malignant pustule or charbon, from which it differs in several very important features—as, for instance, in the pain and suppuration attending its progress, as well as in the nature of the morbid changes of the part affected. Constitutional symptoms of a low type commonly manifest themselves in the course of a few days, and often very unexpectedly, and out of all proportion to the local disease. Rigors, fever, and other manifestations of pyæmic infection are the precursors and cause of the fatality of carbuncle in this part; and it forms an interesting subject of inquiry whether there are any anatomical or other reasons which can account for their occurrence. Güntner, in describing some cases of carbuncle

of the face, remarks that the short, stiff, connective tissue of the lips, nose and septum narium specially favours the early occurrence of thrombosis. Be this as it may, the connection of the facial vein with the ophthalmic and jugular veins, and the great vascularity of the part, offer facilities for the introduction of any infective materials into the cerebral sinuses and general circulation. In a case that came within our observation many years ago the initial manifestation of the disease was an irritable-looking pimple on the left side of the upper lip. This was followed by edematous swelling of an erysipelatous character. Rigors and constitutional symptoms of a febrile type appeared, with chemosis and protrusion of one eye-ball from an intra-orbital abscess, acute pulmonary disease, paralysis of upper extremity, and much swelling of one side of the neck. A post-mortem examination discovered pus in the orbit, and a puriform matter in the ophthalmic vein and cavernous sinus and internal jugular vein, with softening of the cerebral substance and pneumonia. The patient was a young married woman, living in a healthy position, and no cause could be discovered to which the occurrence of the disease could be attributed."

41. *Early Syphilitic Affections of the Osseous System.*—Dr. MAURIAC, of the Hôpital du Midi, has just terminated the publication, in the *Gazette des Hôpitaux*, of an elaborate series of papers under the title of "Precocious Syphilitic Affections of the Osseous System." The following are his general conclusions:—

" 1. Epicranial periostites constitute one of the primary manifestations of syphilis, appearing sometimes a few days after an infectious chancre, and before the secondary symptoms. 2. Their exclusive seat seems to be in the periosteum of the cranium, and, if a hyperaemic or inflammatory lesion of the bone exists, this is accessory and subordinate to the periostitis. 3. This periostitis is a true inflammatory process, as shown by the acuteness of the symptoms and the rapidity of their course. 4. In the acquired syphilis of the adult this kind of tumour of the cranial periosteum has a decided tendency to resolution, disappearing speedily, without leaving any traces. 5. In children the subjects of hereditary syphilis these tumours are much more disposed to pass into a state of suppuration. 6. The pain produced in them radiates from a fixed point, as in neuralgia. 7. They may be either separate or confluent, and are chiefly situated at the anterior part of the cranium; and their duration, if left to themselves, varies between four and six weeks. 8. Periostites may also be produced at the commencing period of syphilis, on the ribs and their cartilages and the sternum. 9. Like the pericranial, they are inflammatory, and disposed to resolution, and are the seat of fixed pains, with neuralgic irradiations. 10. In this way they may induce dyspnoea, although 'syphilitic asthma' may be due to various other causes. 11. Other portions of the osseous system, especially the tibia, may occasionally become affected in the same way. 12. Counting the commencement of the incubation of these lesions from that of the infecting chancre, this will be found to vary from 15 to 120 days. 13. The periostites may be manifested some days prior to the appearance of secondary cutaneous and mucous affections; and they appear spontaneously, without the intervention of any provocative cause. 14. They are more common and more serious in hereditary than in acquired syphilis; and they are oftener met with among the Arabs in Africa and the inhabitants of South America than in Europeans. 15. The periostites of the long bones are usually attended with less irritation than those of the pericranium. 16. They may disappear spontaneously, but they do so much more rapidly under the influence of a combination of mercury and iodine and local antiphlogistics. 17. They aggravate the prognosis of syphilis, although they usually coincide with but slight manifestations in other organs, and imply no malignity in either the local process or in the general tendency of the constitutional disease."—*Med. Times and Gaz.*, Oct. 12, 1872.

42. *Fall of Temperature accompanying great Wounds by Fire-arms.*—By PAUL REDARD. Though the increase of temperature of the body above the standard of health has attracted so much attention, the reverse phenomenon

has not been sufficiently studied. Brown-Séquard, however, has shown that, when in illness, or after wounds or poisoning, the temperature falls a certain number of degrees, there is danger of death solely as a consequence of the fall.

Long-continued exhausting discharges, want of sufficient nourishment, and hemorrhage, have been observed to produce this fall of temperature; but in a more marked manner has it been seen to follow extensive burns, and to occur in uræmia, in sudden ammonia blood-poisoning, in certain cases of septicæmia, sometimes in chronic peritonitis, in internal strangulations and wounds of the intestines (Demarquay), immediately after apoplectic seizures (Charcot), generally in lesions of the spinal cord and in compression of the brain as in hydrocephalus. Hirtz gives as a pathognomonic sign of tuberculous meningitis a fall of temperature coming on at the prodromic period of the malady. A fall of temperature has also been observed after the termination of fever, pneumonia, &c. (the deservescence of Traube), and in various maladies which impede the circulatory and respiratory functions. The administration of digitalis and of tartar emetic has the same effect; alcohol, as a veritable retarder of molecular interchange, causes frequently a considerable fall of temperature; in the acute stage of drunkenness M. Redard has often observed a temperature of  $36^{\circ}$  ( $96^{\circ} 8'$  Fahrenheit).

Placed during the latter period of the French war—the struggle between the regular army and the Federals—in the ambulances "*de la Presse*" (in the service of his master, M. Demarquay), M. Redard had ample opportunities of noticing the effect of injuries by fire-arms in lowering the temperature; every time a patient suffering from a grave wound from a fire-arm was observed by him, a lowering of the temperature of the body was found. In most of the cases the injuries had been inflicted by the bursting of shells, but in some they had been caused by cannon-balls shattering limbs, and in the instances of the Federals the wounds had usually been received while they were in a state of intoxication. In such M. Redard found a wound produced a much greater fall of temperature than did one of equal extent in men of temperate habits, and in them amputations were most unsuccessful. He, therefore, quite indorses the dictum of M. Verneuil, that the prognosis of traumatic lesions, all other things being equal, presents an exceptional gravity amongst subjects addicted to drinking chronically. The author narrates his observations in fifty cases, and concludes his memoir with the following deductions:—

"1. In great injuries by fire-arms fall of temperature is a constantly observed fact.

"2. Several elements come into play in producing this fall. Amongst the principal we will mention—nervous shock, the excitement of the combat with consecutive stupor, hemorrhage, and, lastly, alcoholism.

"3. Every wounded man brought into an ambulance with a grave wound, which seems to necessitate an operation, and who shows a temperature below  $35^{\circ} 5'$  ( $95.09$  Fahr.), will die, and ought not consequently to be operated on.

"4. Every wounded man in whom a salutary reaction is not produced within four hours, and by whom the reaction is not a direct sequence of the fall of temperature, must be considered as very gravely injured.

"5. Burns give rise to an exceptionally great fall of temperature.

"6. The same is the case in wounds of the abdomen. The fall is the more marked the nearer the wound approaches the stomach.

"7. The diagnosis of penetrating wounds may become less difficult, on account of the characteristic thermometric phenomena to which they give rise.

"8. The state of intoxication in which the wounded are sometimes found favours singularly the observed fall of temperature.

"9. Wounds by shells, all other things being equal, produce a fall of temperature more accentuated than those by balls."—*Dublin Journ. Med. Science*, Sept., 1872, from *Archives Gén. de Méd.*

43. *Hypertrophy of the Tongue*.—G. MAAS, in a communication which appeared in the *Archiv f. Klin. Chirurgie*, No. 3, Band. XIII., states that, during the year 1871, there had come under treatment at the "Surgical Clinic"

at Breslau, five cases of hypertrophy of the tongue, which had been present from birth. The enlargement was either of the whole tongue or of only one side. In one case of hypertrophy of the left side of the organ, the enlargement was the result simply of an abnormal growth of the proper tissues. All five cases were successfully treated by excision of the hypertrophied parts by the "galvanic caustic noose." A microscopic examination of enlarged portions showed, in one case, that of a two year old child, that there was simply a hyperplastic condition of all the normal tissues. In the others there was an immense new formation of cellular tissue and bloodvessels, so that the lingual enlargement presented to the feel a spongy cavernous mass. This occurred to the least extent in a child three years old, to a greater extent in one of twelve years, and to the highest extent in a patient twenty-one years old. Hence, Surgeon Maas concludes that in all cases of hypertrophied tongue, the enlargement is at first hyperplastic, the new formation of cellular tissue and vessels being induced subsequently by constant irritation, caused by dragging of the enlarged tongue beyond the mouth.—*Centralblatt f. d. Med. Wissenschaften*, July 13, 1872.

D. F. C.

44. *Osteo-Myelitis in relation to Purulent Infection*.—M. DEMARQUAY (*Archiv. Gén.*, Sept. 1872), after describing his clinical experience and experimental investigations concerning this subject, states that he has proved that pus, whether in a pure or altered condition, when introduced into the medullary canal of bones, induces osteo-myelitis, and determines death by pyæmia or septicæmia, according to the condition of the fluid injected. The symptomatology and the necroscopic results are the same as when similar conditions are induced by injecting the veins themselves. Such experiments, as well as clinical observations, only establish coincidences, and it becomes necessary to demonstrate that there is an easy passage from the medullary canal into the venous system. This is shown to be the case by drilling an opening into the medullary canal between the condyles of the femur in a rabbit, through which, by means of an Anel's syringe, the whole animal may be injected. So also an injection carefully made into the canal of a human bone issues by the veins at the end of the diaphysis. In the future study of osteo-myelitis, the condition of the veins emerging at the extremities of the affected bones should be carefully examined.—*Med. Times and Gaz.*, Oct. 26, 1872.

45. *Third Series of Fifty Cases of Ovariectomy*.—Mr. T. KEITH, of Edinburgh, who has now performed ovariectomy one hundred and fifty times, with eighty-four recoveries in the last one hundred operations, has just published (*Lancet*, Nov. 16th, 1872) a statistical table of his third series of fifty cases. This table shows eight deaths in the fifty cases. Two died from obstructed intestine, one from acute septicæmia, and five from peritonitis. In two of these adhesions were considerable, in one moderate; while in five the tumours were non-adherent.

In nearly all the fatal cases the general condition of the patient was bad. They were all poor women, pretty much worked out, though the tumours were of only moderate size. The result in the 106th case was very disappointing. Everything was most favourable for a successful termination, yet the patient died from diffuse peritonitis, in a way I never saw before nor since.

In six of the fatal cases the clamp was used. In one, catgut ligatures to one ovary and clamp to the other; in another, the long ligatures of Dr. Clay. In nearly one-third of the cautery cases bleeding took place from large vessels, and ligatures were necessary. Many of the cases had been tapped once or oftener; and, as a rule, a manifest improvement in the general health followed the tapping. One had been tapped twenty times, another fourteen times, before operation, yet both made excellent recoveries. Only one of the fatal cases had been tapped. It was that of a young girl dying from a suppurating cyst. Ovariectomy was performed a few days after, but it did not save her. Yet in this series, in other five as hopeless-looking cases of suppurating cyst with septic fever, operation was perfectly successful.

Except that the cautery has sometimes been used in dividing the pedicle,

there has been little change in the way of operating or in the general management of the cases since last report. During the operation perhaps more care than ever is taken to tie every bleeding point; and it need hardly be added, that Lister's animal ligatures are now used. After operation the same precautions are taken in restricting the giving of food and stimulants, especially food.

As an anaesthetic, pure, dry sulphuric ether (Macfarlane's) made from methylated alcohol is always used, and with the best results, especially in the very feeble women. Of one hundred cases in which sulphuric ether has now been given, there have been only thirteen deaths.

46. *Ovarian Dropsy operated on during an attack of Acute Peritonitis.*—Dr. RICHARD T. TRACY communicated to the Royal Medical and Chirurgical Society (Oct. 8, 1872) a case of this. The subject of it was at 31, married five years; mother of two children. The patient had noticed the tumour fifteen months. When first seen she was in a hectic condition, with a rapid and feeble pulse, and suffering great pain from the enormous distension of the abdomen. Some relief was at once obtained by tapping and drawing off two quarts of thick colloid fluid (the tumour was multilocular). After the tapping she was removed to the hospital, and carefully examined. She measured thirty-eight inches in circumference, nine inches from the ensiform cartilage to the umbilicus, and eight inches and a half from the umbilicus to the pubes. Her stomach was very irritable, and she had to be supported by nutrient enemata. Her temperature was 102°; pulse 120; the abdominal tenderness extreme. As it was evident she would soon sink unless something could be done to relieve her, ovariotomy was performed on March 19. The tumour was multilocular, semi-solid, and almost universally adherent; the peritoneal surface was deeply congested, much thickened, and full of flaky lymph, which was removed in large quantities. The pedicle was secured with a clamp, and the wound closed by deep silk sutures and superficial ones of horsehair. Two hours after the operation there had been a considerable fall in the temperature. On the fourth day there was a large escape of gas and fetid fluid from the wound, and from this time recovery was rapid and finally complete. The author expresses his opinion in favour of bichloride of methylene as an anaesthetic, and recommends the extra-peritoneal treatment of the pedicle by the clamp wherever it is practicable.—*Med. Times and Gazette*, Oct. 19, 1872.

47. *Aneurism of the Subclavian Artery cured by Injections of Ergotine and Digital Compression.*—The aneurism developed rapidly, and sixteen injections of ergotine were made in the space of six weeks. From the time the fourth injection was made, there was a marked diminution of the tumour. Digital compression was then employed for six hours every day, during six days. The beatings of the tumour then ceased, and five months later there were left no signs, objective or subjective, of the aneurism.—*Lancet*, Nov. 23, 1872.

48. *Use of the Capillary Aspirator.*—M. LÉON LABBÉ, Surgeon to the Hôpital la Pitié, contributes to the *Practitioner* (Oct. 1872) an interesting article on the puncture of the bladder performed in the hypogastric region by means of the capillary trocar and pneumatic aspiration.

The value of the operation is based upon the fact that, when once the bladder is emptied, and consequently the normal relations of this organ re-established, and when the tenesmus of the whole region is overcome, it becomes generally possible in a short time (a few hours, a day, two or three days) to re-establish the course of urine through the normal passages, whether the cause of the retention be due to traumasms of the urethra, hypertrophy of the prostate, false passages produced by the hand of the surgeon, or very narrow strictures of the canal.

The knowledge of these facts naturally encouraged surgeons to seek for an operative proceeding by means of which they might carry out the leading indication, namely, *to empty the abnormally distended bladder, and to gain time, so as to re-establish the natural passages without, if this be possible, causing the patient to run the risks of a serious operation.*

M. Labb  relates six cases in which the aspirating puncture, according to the method of Dr. Dieulafoy, was successfully employed for emptying the abnormally distended bladder, and from the facts given draws the following conclusions:—

1. That capillary hypogastric puncture is a perfectly harmless operation.
2. That in all cases it must be substituted for ordinary hypogastric puncture.
3. That in a great number of cases it may, when only once practised, allow the surgeon to penetrate afterwards into the bladder through the natural passages.
4. That in certain cases where catheterism is impossible, it may be performed three or four times a day without any injurious effect, and thus permit the surgeon to gain time and restore the natural passages; and at the very least it constitutes a palliative means of the highest importance.

In the *Tribune M dicale* (Oct. 13, 1872), Dr. DIEULAFOY relates ten cases of retention of urine successfully treated by him by the capillary aspirator. In these ten cases fifty-six punctures were made without any unfortunate results. In one case, that of a man aged 72 years, twenty-three aspirations were resorted to in eight days. Dr. D. considers the innocence of the capillary puncture of the bladder in retention of urine as now established.

In a later No. of the journal just quoted (Nov. 10), Dr. D. reports three cases, one of scrofulous abscess of the glands of the neck, cured by seven operations with the capillary trocar; one of a large hygroma of the knee, cured by two operations; and one of hemorrhagic pleurisy, relieved by a single aspiration.

We find also in the last named journal, quoted from the *Gaz. M d. de Strasbourg*, Aug. 1, 1872, a case of strangulated crural hernia reported by Dr. WATCHER, of Ernstein. In this case there was great suffering, which was relieved by the withdrawal of half an ounce of sanguinolet fluid of a faecal odour. Though the hernia was irreducible, the patient was relieved of her sufferings and was able to return to her work.

Dr. CHAUVEAU reports in *Tribune M dicale* two cases of strangulated hernia successfully treated by the capillary aspirator. In both cases puncture of the intestine gave issue to a coloured liquid and to a certain amount of gas; in both cases reduction by means of taxis took some time to be effected (ten minutes in one instance), and required some degree of exertion. Cure took place very rapidly, and both patients were able to resume their work twenty-four hours after the puncture.

Dr. DIEULAFOY has communicated to the Surgical Society of Paris nineteen cases of dropsy of the knee, in which puncture with the capillary aspirator had been performed sixty-five times without any ill consequences. The character of the fluid withdrawn varied, and was sometimes purulent or bloody. Dr. D. stated that he never resorted to this practice in cases of bloody effusion complicating fracture of the patella.

Dr. CHAIROU communicated to the French Academy of Medicine (Oct. 22, 1872) a case of capillary puncture of the pericardium in a young soldier affected with symptoms of dropsy of the pericardium, a sequel of an attack of pleurisy. A large quantity of sero-sanguinolet fluid was drawn off, which quickly gelatinized. No accident followed, and the next day he was lounging about the passages of the hospital.

Notwithstanding the above array of evidence, some surgeons of the highest authority do not admit that the use of the capillary aspirator is free from danger in all cases.

M. DUBREUILH communicated to the surgical society of Paris (*L'Union M dicale*, Oct. 29, 1872) a case of fracture of the patella with large effusion of blood into the joint, in which he twice resorted to puncture with the capillary aspirator without succeeding in drawing out any of the blood. This operation was followed by very serious consequences—purulent arthritis—and a fatal result was anticipated. In the discussion which followed the reading of this case MM. Chassaignac, Verneuil, Despres, Guyon, Tr lat, Marjolin, Larrey, and Le

Fort united in proscribing the use of the capillary aspirator, except for special indications and when absolutely required.

49. *Excision in Gunshot Wounds.*—M. OLLIER read an interesting paper on this subject at the late Medical Congress at Lyons. He observed that his remarks would be confined to injuries of the upper extremity. During the late campaign he had systematically abstained from excision of the bones of the lower extremity, the transport of the wounded being so bad that amputation was always the preferable operation. But at any time he is no strong advocate for excisions of the lower limbs, preferring expectation as a general rule for the hip, and almost always amputation for the knee. Excisions of the ankle usually succeed better than those of the other bones; but even with regard to these expectation is often the better practice.

It has been objected that in gunshot wounds the periosteal sheath cannot be retained; but this is an error, for, however crushed the bone may be, subperiosteal excision can be performed with almost as much regularity as when the bone remains intact—the periosteum being detached from each fragment in succession. This arises from the fact that while the bone, being fragile, breaks, the supple and resisting periosteum yields without rupturing. In aged subjects, however, it is adherent, and is easily torn away with the fragments.

During the late campaign M. Ollier performed subperiosteal excision of the elbow seven times. In one case fatal hemorrhage, caused by an unperceived section of the brachial artery, came on on the twelfth day. In two cases there was complete ankylosis, in consequence of the apparatus having been retained too long a time without the necessary movements having been imparted. The four other cases had complete articular reproduction, and possessed active extension and flexion of the forearm, without lateral movements. In one of the cases these last existed to a slight extent, but without impeding the functions of the limb.

The question of the indications is sometimes a delicate one. If the elbow-joint be largely opened, and there is notable loss of soft parts, amputation is the sole resource; but if the soft parts remain sufficiently intact, excision may be performed, howsoever great is the lesion of the bone. The indication is precise when the fissures do not extend beyond a fourth of the shaft of the bone, but is less positive if these extend to the half of its length. As a very general rule it is the state of the soft parts which determines the indication. The most difficult cases to decide upon are those in which there is a small wound of the joint and the bone. Expectation may produce a cure by ankylosis, but there is considerable danger of death from purulent arthritis; and excision, while it gives rise to very much less pain, is also less dangerous than purulent arthritis. When arthritis supervenes, and especially when the wound is small, the pains are fearful, and the large opening caused by excision at once assuages them. The indications for excision in the continuity of bones are less peremptory than are those for articular lesions. When the humerus is traversed and broken into numerous fragments, expectation should still be the rule. M. Ollier performed excision in only three such cases, and "expected" in more than twenty. When the fragments are considerable, we cannot tell where they extend to until after exploration under anæsthetics. If, after removing those of them which are loose, there is no fissure, it suffices to render the limb immovable; if there are fissures, each fragment should be caused to project, so that it may be examined. When with the fissure there exists a detachment or laceration of the medulla, the limits of this should be ascertained, and the bone removed at its level; in fact, it is the condition of the medulla that is to be taken into account rather than the fissure itself, and especially in young subjects.

In treating the case afterwards, we should bring the ends of the bones nearer to each other in proportion as we rely less on regeneration. In a child the entire sheath may be retained; but in older subjects upon whom primary excision has been performed, not more than three or four centimetres must be allowed to intervene between the ends, and often less. The *oauto-silicate*

bandage is the best, rendering the limbs immovable, and allowing of the easy transport of the patient.—*Med. Times and Gaz.*, Oct. 26, 1872.

50. *Resection of Knee-joint shattered by a Gunshot Wound.*—RITZMANN relates a case of gunshot wound of the knee, in which Professor König, two and a half months after the receipt of the wound, resected the joint. The ball was found still imbedded in the shattered external condyle of the femur. The patella was not removed in the operation; entire bony ankylosis ensued.—*Centralblatt f. d. Med. Wissenschaften*, 1872, No. 32; from *Berlin. klin. Wocheu-schr.*, 1872, No. 23.

D. F. C.

51. *Ankylosis of the Lower Jaw—A False Joint successfully formed on both sides.*—In a man, twenty-seven years old, who, in the course of an attack of scarlet fever, which occurred in his seventh year, had suffered from an inflammation of the articulation of the jaw on both sides, resulting in complete ankylosis; it was evident, that, from the long time the jaw had remained immovable, a firm union had taken place between the bones of the two jaws at the place of the ankylosed joints. To form an artificial joint, a triangular portion of bone, with base downwards (after Esmarch), was excised; on the one side by Middeldorp, and on the other, subsequently, by Fischer. The complete mobility of the jaw had remained up to the time the case was reported by Dr. Maas, a period of four months subsequent to the operation.—*Centralblatt f. d. Med. Wissenschaften*, No. 29, July 13, 1872.

D. F. C.

52. *Treatment of Traumatic Erysipelas.*—M. WILDE, in the *Deutsche Archiv f. klin. Med.*, 1872, states that, in a number of cases of erysipelas from wounds, he has seen much good to result from subcutaneous injection of sulpho-carbolate of soda. It was injected daily, at three or four points, along the edge of those portions of skin over which the erysipelas extends, by means of a Pravaz's syringe, with an occasional use of a solution—1: 12—of the amorphous salts. By this treatment he has known the erysipelas to disappear entirely in three, or at the furthest four, days.—*Centralblatt f. d. Med. Wissenschaften*, No. 32, 1872.

D. F. C.

53. *Obstinate Recurrent Neuroma after Amputation; Cure by Electro-puncture.*—A case is related by GIRARD, in which, subsequently to an amputation of the right arm at the centre of the humerus, during the healing of the stump, a severe attack of neuralgia occurred; the pains extending along the forearm and hand, and, also, toward the breast. At a later period, cramps and trembling set in, the whole being the result of an excessively painful neuroma situated on the inner surface of the limb. After the fruitless administration of various narcotics and derivates, the tumour, composed, for the greater part, of fibres replete with nervous matter and nervous ramifications, was excised. Fourteen days subsequently the neuralgia recurred, and three, new, small neuromata appeared above the cicatrix caused by the operation, which were, by Prof. Lücke, extirpated with, as he believes, a portion of the affected nerve equal in length to 2-3 cm. Two months after this operation the neuralgia returned with increased severity—and three neuromata of the size of a hazelnut each again made their appearance over the cicatrix of the preceding operation. These were treated by electropuncture, with thirty-six small elemental needles, coated to their points. The operation was repeated three times, and continued at each for fifteen minutes; the tumours becoming, finally, insensible and scarcely to be detected. At the end of eight weeks after this last operation, there had been no return of either neuromata or neuralgia.—*Centralblatt f. d. Med. Wissenschaften*, July 6, 1872, from *Deutsche Archiv. f. Chirur.* Bd. 1, Heft 1.

D. F. C.

54. *Treatment of Syphilis by Hypodermic Injections of Calomel.*—Drs. PIROCHI and PORLEZZA have contributed a very important paper on the above to the *Giornale Italiano delle Malattie Veneree*. The authors have recorded fifty-five cases in which they made use of calomel in subcutaneous

injections, and they thus sum up the conclusions to which they have arrived : 1. Recurrence of the disease is less frequent with subcutaneous than with internal treatment. 2. Calomel is preferable to the sublimate and other salts of mercury which have been tried until now, on account of the less gravity and frequency of local and general accidents. 3. Injections with calomel should be performed on the external and central surface of the arm. 4. The syringe should be introduced with precision into the subcutaneous cellular tissue, and care should be taken that the point be not fixed into the thickness of the derm. 5. The best vehicle for the calomel is hydrate of gum-arabic. 6. The quantity of calomel used must vary between ten and twenty centigrammes (about two to four grains). 7. Painting with collodion is very effective. 8. There should be an interval of at least ten days between every two injections. 9. The injections should be discontinued if the first two produce little or no amendment.

—*Lancet*, Nov. 23, 1872.

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### OPHTHALMOLOGY.

55. *Treatment of Strumous Ophthalmia.*—Mr. HENRY POWER, Senior Ophthalmic Surgeon to St. Bartholomew's Hospital, finds that general treatment is by no means sufficient to cure the patient, and amongst the many local remedies he has used, he gives the palm to atropia, in a two or four grain solution, Pagenstecher's yellow ointment, and calomel. With one or the other of these, most cases, he says, may be cured.

Cases, however, occasionally occur in which all these plans of treatment fail ; and the question comes, what must now be tried ? It is then that I claim attention to the value of extract of belladonna given internally. I have repeatedly found that it rapidly diminishes the intolerance of light, and by its power of relieving the spasm of the muscles closing the lids, enables the child to obtain an amount of benefit from air and exercise that was previously impossible. I can entertain no doubt that its good effects are attributable to its action as a stimulant upon the sympathetic system of nerves, and through this upon the smaller vessels. It is further of use in doing away with the necessity for purgatives, as even in small quantities it acts efficiently in clearing the bowels. I have usually prescribed it in doses of one-eighth to one-quarter of a grain. It is perhaps scarcely necessary to add that, as it is a potent remedy, its effects must be watched, and its administration should be suspended as soon as the child complains of thirst, or when the rapidity of the pulse is observed to be increasing. I have only noticed these symptoms in one or two instances. I have also found the extract of belladonna serviceable in cases where the affection was rather a limited keratitis than phlyctenular ophthalmia ; that is, in which a small segment of the cornea was hazy and vascular near the margin, even though the intolerance of light may not have been very intense. I consider the seton, though recommended by so good an authority as Mr. Bader, a *pis aller* ; and find the treatment mentioned by Dr. Swanzy as practised by Von Gräfe, though it was originally suggested by Jüngken, of dipping the whole head for a few seconds in cold water, not persistent in its effects.—*The Practitioner*, Oct. 1872.

56. *Evulsion of the Iris.*—Mr. W. H. FOLKER states (*Brit. Med. Journ.*, Oct. 5, 1872) that, while a man, æt. 42, was pulling at a piece of wood, a portion of it suddenly flew up, striking him in the right eye, making a wound in the outer and lower edge of the cornea. The anterior chamber had some blood in it, and chemosis was setting in ; the eye was too painful at the time to allow of minute examination. Mr. F. at once applied atropia, and employed antiphlogistic treatment.

When all inflammation had subsided, and the corneal wound had healed, the iris was found to be completely torn away, a piece of the size of about two pins' heads only remaining at the corner of the wound. There was for a long time

great intolerance of light; which, however, has gradually subsided, and the patient is now able to bear any moderate amount of light. At the present time, the lens is perfectly clear. If anything, the eye is slightly contracted. On closing the other eye he can see, but cannot discern distinctly.

When tested with Jäger's types he could read nothing, but, looking through a circular hole, one-sixteenth of an inch in diameter, in a piece of dark paper, he could read Jäger No. 19. With a test-spectacle (No. 9) covered with the same piece of paper, he could read No. 16. When the hole in the paper was enlarged to the eighth of an inch he could not distinguish anything; and with neither aperture did any other spectacles suit him.

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#### MIDWIFERY AND GYNÆCOLOGY.

57. *Recession of the Fœtal Head after Extraction from the Vagina.*—Dr. TABUTEAU communicated to the Dublin Obstetrical Society (June 15) the following case of this. In 1859, he was called to a woman, æt. 22, in her first confinement. She had, when he first saw her, been thirty hours in labour, under the care of a self-taught midwife. He found a face presentation with the chin to the pubis, the head low in the pelvis, and the parts fully dilated. After waiting some time and seeing no progress, he determined on applying the forceps. This he did without any difficulty, and in about five minutes he delivered the head, the chin resting below the pubic arch. In three minutes afterwards he found the head had entirely receded within the vagina. Dr. Tabuteau subsequently effected delivery, without difficulty, of a stillborn child. The recovery of the woman was rapid and complete.—*Dublin Journ. Med. Sci.*, Nov. 1872.

58. *Treatment of some Forms of Extra-Uterine Pregnancy.*—Dr. MEADOWS read a paper before the Obstetrical Society of London (Nov. 6, 1872) on this subject. Relating a case of the so-called ventral variety, he referred to some remarks made by him, and published in the last volume of the Transactions, in which he advocated more frequent resort to the operation of gastrotomy in certain cases of extra-uterine gestation, the object of the operation being to anticipate, and so to avert, the almost inevitably fatal rupture of the cyst, and death from hemorrhage. In the former communication the suggestion was also made that, with a view to prevent one of the great dangers attendant upon this operation—viz., hemorrhage—the placenta should not be removed, but should be left to undergo the slow but sure process of atrophy and absorption, it being argued that, as by the removal of the fœtus there is no longer any physiological necessity for that structure, its removal by atrophy might fairly be reckoned on. The present communication was based upon another case of so-called ventral pregnancy, which, coming under the author's care during his absence, had been seen by two of his colleagues at the Hospital for Women, Dr. Squarey and Mr. Scott, and a living child at about the seventh month was removed. The attempt, however, to remove the placenta, which was situate deep down in the pelvis, and the foetal cyst was attended by such frightful hemorrhage that the patient succumbed in a few hours. Dr. Meadows now contended that in all cases where the diagnosis of a living and a viable child could be made out, gastrotomy ought to be performed; and that in order to facilitate the operation, and at the same time to diminish its danger, both the placenta and the containing cyst should be left *in situ*, special care being taken not to detach any portion of the placenta. In this way the operation might be reduced to a very simple process, and the chief care should be, first to extract a living child, and then to do as little damage as possible to the remaining structures, thus preventing hemorrhage, and enabling them afterwards to undergo the process of atrophy and absorption, just as occurs in some cases where, no operation having been performed, the fœtus has died, been mummified as it were, and finally been absorbed.

59. *Pelvic Hæmatoma*.—Dr. SNOW BECK read to the Obstetrical Society of London (Oct. 2) a case of this with remarks especially as to the source of the hemorrhage.

A woman, aged forty, who had suffered from considerable dyspeptic symptoms, with severe haemorrhoids, who had never been pregnant, and in whom the catamenia had always been profuse, suffered during the periods for the last two or three years from severe pain in the left iliac region. During the last period this pain had been very severe; it suddenly ceased, and a few minutes afterwards an oval lump resembling a duck's egg was perceived, firmly pressed against the abdominal wall in the left hypogastrium. This was the uterus. A soft elastic swelling existed between the uterus and the rectum, bulging forwards the posterior wall of the vagina, and presenting a soft depression directly behind the orifice of the uterus. No constitutional symptoms followed, nor anything to indicate inflammatory action. On the seventh day some dark-coloured clots and port-wine coloured blood passed with a gush from the rectum; the swelling gradually subsided, and the patient gradually became well. It was concluded that an effusion of blood had suddenly taken place amongst the loculi of the pelvic fascia, probably from the rupture of a congested pelvic vein. The sources from which the blood came in pelvic hæmatoma were considered to be (a) rupture of an ovary which had previously undergone some process of degeneration; (b) rupture of a Fallopian tube, or the escape of blood from the congested vessels of this part, in which cases the blood will be effused into the cavity of the peritoneum; and (c) rupture of some varicose veins. When the vein was situated in the broad ligament, the blood might be effused into the pelvic cavity or into subserous cellular tissue. When the vein was situated in the pelvis the blood was effused in some of the loculi formed by the pelvic fascia. The reputed source of the blood by regurgitation from the uterus through a Fallopian tube, consequent upon some disorder of the menstrual function, was considered highly improbable; and the cases upon which this opinion was founded were closely examined. There was no evidence of this in any of the cases collected by Bernutz and Goupil, except where there was permanent obstruction to the outward flow of the catamenia, and consequent distension of the uterus. And the evidence was equally unsatisfactory in the twenty-seven cases recorded by Dr. Barnes. Some of these cases, with the remarks upon them, were closely examined. In the treatment it was considered unnecessary to interfere where there were no constitutional symptoms, and the effused blood was evacuated by the rectum or the vagina in a short time. But when this fortunate course did not occur, as a general rule it was desirable to procure the artificial evacuation of the effused blood—when some weeks had elapsed without any signs of decrease in the swelling, when the swelling became more tense, more tender, and more painful, and when the temperature increased, the complexion became of a dirty-yellowish hue, the abdomen swollen and tense, when there were repeated shiverings, vomiting, rapid pulse, etc. The evacuation might be effected by a curved trocar passed in towards the centre of the swelling, or by free incision into the tumour. As a rule, the rectum was to be preferred to the vagina as the place for the artificial evacuation.—*Lancet*, Oct. 26, 1872.

60. *The Dangers of Operations on the Neck of the Uterus*.—M. ALPH. LE-TEINTURIER (*Archives Gén. de Méd.*, Sept. 1872) draws the following conclusions from his observations: 1. Operations (even when slight) upon the neck of the uterus may prove the *point de départ* of serious affections. 2. In such cases, more or less ancient lesion of the uterine annexes is discoverable. The operation seems, so to speak, to awaken the old inflammation. 3. Three circumstances may be referred to as favouring and explaining this: 1. A partial lymphangitis, commencing at, and spreading from, the neck of the uterus. 2. General congestion of the pelvic organs. 3. A congestion localized in some part of the genital system, occasioned by a reflex action originating in the cervix.—*The Practitioner*, Oct. 1872.

61. *Fibrous Tumours of the Uterus*.—M. DEMARQUAY, on behalf of a com-  
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mittee, made a report to the French Academy of Medicine (Oct. 29, 1872), relative to a memoir of M. BONET's on fibrous tumours of the uterus, the different changes which they may undergo, the errors which may be committed in their diagnosis, and finally the propriety of extirpating abdominal tumours originating in the uterus and designated fibrous tumours or fibro-cystic tumours.

The reporter discussed the question of the propriety of gastrotomy in such cases, and stated that in 20 operations, there were 8 cures and 12 deaths; a much larger mortality than from removal of ovarian cysts. The cause of death in these cases was almost always hemorrhage, peritonitis, phlebitis, etc. It is proper to state that up to 1860 and 1862, most of the operations of this kind were performed through errors of diagnosis; surgeons believing that they had to do with ovarian cysts, instead, as was the case, with fibro-cystic tumours of the uterus. Since 1862 surgeons have performed partial or complete ablation of the uterus with a full knowledge of the nature of the case.

An incomplete table of the results of this operation up to 1866 shows 42 cases of partial ablation of the uterus, of which 33 terminated fatally and 9 successfully. The cause of death has been most frequently hemorrhage and peritonitis. Notwithstanding this success M. Boinet condemns this operation and criticizes the results obtained. M. Demarquay indorses the opinion of M. Boinet.

In fact, fibro-cystic tumours of the uterus may remain long stationary and ultimately become atrophied; they are in fact compatible with life, which ovarian cysts are not. It is only exceptionally that these cysts become largely developed and endanger life. The extirpation of an uterine tumour, whatever its size, is always a serious matter, at least unless it has a long and slender pedicle, which then approximates it to an ovarian tumour. Even in cases where the life of the patient is endangered, M. Demarquay concurs with M. Boinet in condemning the operation for the following reasons: 1. The uncertainty that exists as to the completion; 2. The risk of fatal hemorrhage; 3. The duration of the operation; 4. The serious consequences—nervous shock, peritonitis, secondary hemorrhage—death. The success obtained by different surgeons, among others MM. Kœberlé, Péau, etc. proves nothing. The reporter maintains that we require conscientious statistics embracing a number of well-defined facts.—*L'Union Médicale*, Oct. 31, 1872.

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#### MEDICAL JURISPRUDENCE AND TOXICOLOGY.

62. *Antagonism of Strychnia and Chloral.*—M. ORÉ presented to the Academy of Sciences a new work on this subject. He finds—1. That not only does the intravenous injection of 1 milligramme of strychnia (a fatal dose for a rabbit of 4 lb. weight) fail to prevent the animal from succumbing to the influence of 4 grammes of chloral, but the presence of the alkaloid does not manifest itself by any characteristic phenomena. 2. The injection of 2.5 milligrammes of strychnia produces well-marked convulsions. In one case it appeared to retard the death of the animal, without, however, preventing it; for it died with all the symptoms of chloral poisoning. 3. In proportion as the dose of strychnia augments (3.45 milligrammes), death occurs with greater rapidity. 4. If the dose be raised to 7.5 milligrammes, the action of chloral is entirely obliterated, and the animal dies by strychnia poisoning. 5. If we try to combat the effects of chloral given in a fatal dose by the subcutaneous injection of strychnia, the animal always dies—most frequently from the action of the first substance, though sometimes from the second. Hence he concludes that strychnia is not an antidote to chloral.—*Lancet*.

## AMERICAN INTELLIGENCE.

## ORIGINAL COMMUNICATIONS.

*Hypodermic Injection of Sulphate of Morphia in Autumnal Catarrh.*  
By WM. MOSS, M.D., of Chestnut Hill, Philada.

I first tried this remedy in my own case, three years ago, having previously had slight relief from the internal use of morphia, and hoping only for a few hours' respite from the miseries of a violent attack of autumnal catarrh. The relief was immediate, and, to my surprise, lasting. I have since used it in a number of cases of autumnal and June catarrh with almost invariable success. It is sometimes necessary to repeat the injection one or more times during the period of susceptibility.

While far from claiming that this treatment is a specific, I am confident that it will bring a speedy relief to many who are unable to avail themselves of Dr. Wyman's pleasant remedy—a jaunt to the White Mountains.

*Phytolacca Decandra in the Treatment of Inflammation of the Mammary Glands.* By G. W. BIGGERS, M.D., of La Grande, Oregon.

The following cases are stated as the *result of my experience* only with the remedy in question, and I trust that others may try it and report the result.

**CASE I.**—Mrs. H., on third day after labour with her second child, mammae commenced swelling, from an accumulation of milk. Did not see her until the symptoms were so urgent that there could be no mistake about the commencement of an abscess.

I pursued the antiphlogistic treatment, both general and local, until there was no promise of improvement; on the contrary, the case was continually getting worse. I then prescribed fluid ext. phytolacca decandra, gts. xx, every three hours, in water. A very marked improvement took place in twelve hours, and in thirty-six hours the patient was well. There was also a suppression of the lochia, which was also re-established.

**CASE II.**—Mrs. B., whose child died a few hours after its birth, was attacked, after the secretion of milk took place, with inflammation of the mammary glands, from over-distension, and had the milk withdrawn very regularly, yet the case continued worse, threatening an abscess. I prescribed fluid ext. phytolacca decandra, gts. xx, every three hours. Marked improvement in ten hours, and a complete recovery within thirty-six hours. There was also a suppression of lochia in this case, which was re-established with the cessation of the mammary inflammation.

**CASE III.**—Mrs. G., at the fourth month of pregnancy, was attacked with inflammation of both mammae, severe pain, swelling, and very great heat, with severe rigours, amounting to a distinct chill. I prescribed fluid ext. phytolacca decandra, gts. xv, every three hours, in water. The symptoms all subsided, and the patient fully recovered within forty-eight hours with no other treatment.

I have used the remedy above named in many other cases of mammary inflammation, and it has never yet failed in a single case.

The preparation used was Thayer's fluid extract, for the reason that

the plant does not grow in this State. A tincture from the green root would, I think, be more reliable.

*Large Hepatic Abscess; Puncture; Death.* By GEORGE N. MONETTE, M.D., Visiting Physician to the Charity Hospital, New Orleans, La.

Frank H., æt. 34, a coloured steamboat deck-hand, came under my observation about the 15th of March, with what was apparently ascites, with all the characteristic phenomena, save a want of uniformity of distension in the left hypochondriac region; his spleen was of a comparatively small size. He states that, about the middle of the preceding year, after having eaten a very sumptuous meal, he felt a keen lancinating pain in the right side, which he could not account for. He also suffered from a very severe fever on that night, associated with continued and persistent dysenteric symptoms, which continued for six weeks, when the accumulation attained its acme. He had pain over the region of the liver, also in the shoulder; hectic, dysenteric symptoms; tongue slightly furred; the conjunctiva was of a very sallow hue; the superior, as also the inferior extremities, were very much emaciated and inclined to oedema, more especially after standing. I apprehended some heart-complication; none existed; so I attributed it to obstructed portal circulation, caused by the enormous enlargement of the liver, encroaching upon and resulting in compression of the viscera and the larger vessels.

The enlarged organ within the abdominal parietes measured in its largest circumference (across the umbilicus) three feet three inches; the smallest circumference (across the pubis) was two feet six inches. The man was of small stature, being only about five feet five inches.

There was great tenderness upon pressure, and, when percussed, he experienced very acute pain. He preferably rested upon his right side, or partially upon his back, owing to the great pain induced by the organ being suspended from its attachment when lying upon his left side.

For some considerable length of time I observed a partial disposition for its determination about the right hypochondriac region, on a line parallel with the umbilicus. This was evidently caused by continued pressure, which induced a comparative atrophy of the muscular structure of the abdominal parietes.

Prior to the administration of any remedy the inferior border of the enlarged liver extended downwards as far as the crest of the ilium, and about an inch and a half below the umbilicus and the smaller lobe, extending over and below the cartilages of the ninth, tenth, and eleventh ribs on the left side.

For treatment, I usually gave quiniæ sulph. in 3 grain doses every four hours, combined with 5 drops tinct. opii, until he had taken 15 grains of the quinia and tr. opii proportionately. I then gave as a *placebo*, as follows: R. Potassii iodidi 3ij; syrapi sarsaparill. comp., tinct. cinchonæ comp., aa 3ij. Misce. Signa. A tablespoonful three times daily, which acted very satisfactorily, and he said it benefited him very materially.

The prognosis being unfavourable, I concluded to explore the abscess, and invited two of my former professors (Profs. Bemiss and Richardson) to be present and witness the verification of my diagnosis.

On the 21st day of May I inserted a trocar at the suspected point of determination, and withdrew about a quart of horribly fetid pus. The patient experienced great relief, and consoled himself that he might recover; but he only survived the operation eight days. Being indisposed on the day of his death, I did not secure a post-mortem examination.

## DOMESTIC SUMMARY.

*Extirpation of the Kidney.*—A case of this rare operation is recorded (*New York Med. Journ.*, Nov. 1872) by Dr. GEO. A. PETERS. The subject of it was a gentleman æt. 36, admitted into St. Luke's Hospital, New York, April 1, 1872, under Dr. Peters's care. His health had been excellent until Oct. 1870, when after a thirty-mile horseback ride in the rain, he was seized with frequent and urgent desire to micturate, and he passed large quantities of clear straw-coloured urine.

After two weeks the urine became high-coloured, and deposited a brickdust sediment, and he experienced pain before and after micturition, extending from the neck of the bladder to the meatus. At this time he first suffered with lancinating pain in region of right kidney, which increased on movement and extended downward into the pelvis, and from a sense of weight in the right side. In the spring of 1871 his general health improved, the urine became clearer, and he had less pain on micturition.

In July, 1871, after another long horseback ride, he experienced a painful swelling of testicle, and the swelling extended up the spermatic cord. The pain and swelling lasted without relief for six weeks, and finally subsided.

As the winter of 1871-2 approached he began to suffer as before. He was treated for vesical calculus, cystitis, and stricture, by various physicians, but without relief. One day, in Dec. 1871, just after a catheter had been introduced, he felt a sharp pain in the region of the bladder, "as though something had given way," and immediately passed a wineglassful of clear pus, unmixed with urine. From that time on, at the close of each act of micturition, he passed about a drachm of pus, clear and yellow, unmixed with urine or blood.

This condition of things continued at the time he came under Dr. P.s' care. At this time the patient's general condition was good, he urinated every hour, with pain before and after passing urine (about a wineglassful each time) followed by a drachm of pus. Albumen in urine, but no casts. He complains of a constant sense of weight in right lumbar region, with pain, which is at times severe and paroxysmal, shooting down into the pelvis; also pain at the end of penis. There is a tumour occupying the region of the right kidney, supposed to be the kidney itself. What appears to be the pelvis of the kidney is the seat of the principal enlargement, and at this point deep fluctuation is distinctly made out. By rectal examination the vas deferens of the same side is found enlarged and indurated.

On the 7th of May, the patient being etherized, Dr. P. punctured the tumour with Dieulafoy's aspirator (No. 2) "at a point midway between the last rib and the crest of the ilium, and three inches from the vertebral spines. About three ounces of clear pus flowed rapidly into the exhausted receiver, when the current suddenly ceased; and, on withdrawing the canula, after vain sounding with it for any thing having the feel of a calculus, its eyes were found plugged with small masses of granular matter, which were decided to be fragments of calculus. The puncture healed without causing the least trouble.

"From the symptoms, pain, purulent discharge, and previous traces of blood in the urine after exercise; from the condition of the kidney as appreciated by palpation and the additional evidences of stone which the exploration was thought to furnish; after due consultation, the diagnosis of calculus pyelitis was decided on, and the operation of nephrotomy, with possible extirpation of the kidney, depending on the amount of degeneration, was considered advisable."

On the 16th May, while the patient was under the influence of ether, Dr. P. made an incision six and three-quarter inches in length "extending from the lower border of the twelfth rib to the crest of the ilium, parallel to and three inches from the vertebral spines. The outer border of the quadratus-lumborum muscle was thus reached, and, by cutting through the sub-lying fat, the capsule of the kidney was easily brought into view. A long and tedious search was then made in order to bring the pelvis of the organ in sight, so that it might be opened into, and the stone, if any existed, removed.

"This, however, was found impossible, owing to the fact that the pelvis was not at all distended, and also to the depth from the surface at which it lay, and the number of adhesions binding it down on all sides. Several fluctuating points were discovered on the surface of the kidney, into one of which a small exploring trocar was introduced, and an inconsiderable amount of pus (about 3*l*) was withdrawn, but no stone was felt. A silver probe was substituted for the trocar, but with no better success. The probe was withdrawn, and the smallest ordinary steel urethral sound introduced. This was felt to drop into a cavity two and a half inches, but still revealed no stone. The puncture was then enlarged by a transverse incision with a blunt-pointed bistoury, sufficient to admit the finger, and the whole cavity thoroughly explored, but without success. Considering the evident uselessness of the kidney for any physiological purpose, and the damage it had already suffered in the search, it was thought best to remove it entirely. The adhesions around the kidney on the upper and lower sides were torn away with difficulty. One vein was tied separately, the other vessels and the ureter were so firmly agglutinated as to make their separation impossible. They were all secured by one strong silk ligature, and the mass cut through between it and the kidney. The cut surface was very hard and dense, looking almost cartilaginous. A few muscular arterial branches required the ligature in the early steps of the operation. Five ligatures were left in the wound, the edges of which were brought together with six deep sutures. The operation lasted nearly two and a half hours. Wound dressed with sheet-lint, compress and body bandage. Patient, evidently much depressed by the anæsthetic, was immediately put to bed and ordered hot-air bath. Brandy was also administered both by mouth and rectum," and also morphia hypodermically.

The patient died sixty-five hours after the operation.

From the report of the autopsy made by Dr. F. Delafield we learn that in the right kidney, ureter, seminal vesicle, and epididymis, a chronic inflammation leading to the formation of fibrous tissue and lymphoid cells, with a tendency to cheesy degeneration, had been going on.

The above is the eighth case, so far as we have been able to ascertain, in which the operation of extirpation of the kidney has been performed on the human subject. Dr. Peters states, in the paper above quoted, that, "after diligent search I have been able to find but three other recorded cases." These are Simon's, Von Bruns' (erroneously ascribed by Dr. Peters to Linser), and Durham's. Four others (Peaslee's, Schetelig's, Gilmore's and Meadows') should be added to his list.

To complete the history of the operation we have collated the notes of these seven cases:—

CASE 1.—Dr. E. R. PEASLEE (*On Ovarian Tumours*, p. 158), in April, 1868, cut down upon a supposed ovarian tumour, but which proved to be a solid renal tumour; it was removed, and the patient died of peritonitis fifty hours after the operation.

CASE 2.—Operated upon by Dr. SIMON, of Heidelberg (*Deutsche Klinik*, April 9, 1870, and *Edin. Med. Journ.*, May, 1870). The patient, aged 46, had, a year and a half previously, undergone ovariotomy, combined with hysterotomy and division of the left ureter. An abdominal uretral fistula remained, for the cure of which, after several ineffectual attempts to close, Prof. Simon extirpated the kidney in August, 1869. The patient left her bed in six weeks. The ligatures attached to the pedicle did not come away for six months; after which the wound rapidly cicatrized and she entirely recovered.

CASE 3.—Dr. SCHETELIG (*Archiv für Gynäkol.*, 1870) reports a case in which he cut down upon what he supposed to be an ovarian cyst, but which proved to be an enormous hydronephrosis; adhesions were found extending into the pelvis; extirpation was performed by gastrotomy; death ensued on the second day. On dissection, no trace of left kidney could be found. (*New Sydenham Soc. Biennial Retrospect*, 1869-70, and *Peaslee on Ovarian Tumours*, p. 157.)

CASE 4.—Operated upon by Prof. VON BRUNS, and reported by Linser (*Württ. Med. Corresp.*, Bl. 1871, xli. No. 14, and *Am. Journ. of Med. Sci.*, Jan. 1872). The patient, a male received a gunshot wound, Dec. 2, 1870. The ball entered

on the left side, and passed out an inch to the right of the spinal process of second lumbar vertebra. Urine was discharged through the fistula, which was believed to connect with the left kidney. Prof. Von Bruns extirpated the kidney March 23. Death occurred ten hours after the operation.

CASE 5.—Dr. JOHN T. GILMORE, of Mobile, Alabama (*Am. Journ. of Obstetrics*, May, 1871), in December, 1870, extirpated the left kidney of a negro woman, aged 33 years. Following her first pregnancy, four years prior to the operation, an indistinct tumour appeared in the upper part of the left lumbar region, which gave constant pain, and within the last four or five months the pain had become so severe that she sought relief at all hazards, and Dr. G. determined to remove the offending substance, even if it should prove to be the kidney. Upon making his incision he found an atrophied kidney, and extirpated it. It was fed by a single small vessel, which was ligated. At the time of the operation the patient was five months advanced in pregnancy. She recovered without aborting.

CASE 6.—Dr. MEADOWS, of London (*Brit. Med. Journ.*, July 8 and 15, and *Med. News*, Sept. 1871), operated for the relief of a patient suffering from what was supposed to be ovarian dropsy; but, on opening the abdomen, the tumour was found to be a large cyst of the kidney. A ligature was applied, as in the operation for the removal of an ovarian tumour, and the diseased kidney extirpated. The case proved fatal from hemorrhage of the pedicle on the sixth day.

CASE 7.—Operated upon by Mr. DURHAM, of London (*Brit. Med. Journ.*, May 18 and 25, 1872, and *New York Med. Journ.*, Nov. 1872, May 14, 1872). The patient was a female, aged 43 years. Two years previously Mr. Durham cut down upon the kidney, but no calculus was found, and, the kidney being healthy, the wound was closed. The patient recovered, but was not relieved from the severe pain, haematuria, and other symptoms from which she had suffered. The kidney was subsequently extirpated, and was found healthy. The patient died within a week.

Of the eight cases recorded above, two recovered and six died.

*Stone in the Kidney; Nephrotomy.*—Dr. W. W. DAWSON communicated to the Cincinnati Academy of Medicine, Oct. 26, 1872, an interesting case of this. The subject of it was a woman, about fifty years of age, a patient of Drs. Graham and Bartholow, who eight years ago was suddenly attacked by a violent haematuria. From this she recovered and retained good health until five years since, when she was again seized with an attack of the same nature. From that period she was subject to these attacks at varying intervals, but yet enjoyed comparatively good health. Two or three years ago she began to experience a sense of pain in the left lumbar region, and soon a tumour, which rapidly increased in its dimensions, appeared in the left hypochondrium. The tumour was very sensitive to the touch, and pressure produced pain. The patient passed immense quantities of pus with her urine, and her general condition soon commenced to deteriorate under the exhaustive drain.

The patient was first seen by Dr. D. Oct. 19, when he found a large tumour in the left lumbar region extending from the ribs to the crest of the ilium, and crowding over also towards, but not reaching, the median line. The case was considered one of pyelitis, and the existence of a renal calculus had been diagnosticated by the physicians in attendance. Five days prior to the operation one pint of pus was removed from the tumour by the use of the aspirator. The canula was then allowed to remain, and the tumour exhausted at two different times prior to the operation for the removal of the calculus.

On Oct. 24, the patient being under chloroform, an incision was made posteriorly on a line from the eleventh rib to the crest of the ilium, along the border of the *erectores spinæ*; after dissecting through two inches of healthy tissue the operator came upon a glistening membrane which proved to be the *transversalis fascia*. Making an incision through this, the peri-renal fat was exposed; it was present in quantity and a considerable portion of it was excised. This immediately brought the kidney with its characteristic color into view. Then by placing the finger in the wound and palpating the abdomen anteriorly

Dr. Graham obtained indistinct fluctuation. The kidney was punctured with a trocar, and a quantity of pus removed. The opening was then enlarged by the knife, more purulent material thus liberated; and the finger was then introduced into the tumour, which was nothing less than a sac of the degenerated kidney. After scooping out all purulent accumulation, the finger came in contact with the calculus, which was successfully extracted. A drainage tube was thereupon inserted and the wound was closed.

The patient continued in good condition for about four days. Pus continued to drain off, in small quantities, through the wound; the urine voided was perfectly clear. Pyæmia then set in, and the patient died five days after the operation. No post-mortem was allowed.

Dr. Whittaker, who made an examination of the stone from the small particles he was allowed to detach, states: "This stone is extremely light; it weighs but 20 $\frac{3}{4}$  grs. It is  $\frac{7}{8}$  of an inch in length in its longest diameter, and  $\frac{1}{2}$  an inch in breadth. It is somewhat reniform in shape, presenting an irregular central constriction. Its surface is everywhere calcareous and quite rough, presenting elevations and depressions corresponding to the calices and pyramidal apices. It varies in colour on its external surface from black through shades of purple, red, and deep and light gray to nearly white. The substance of the stone is of chalky whiteness. It is clearly a phosphatic stone, an accumulation of the ammonio-magnesian phosphates of lime covered with urohæmatin and mucus. This nature of its constitution is evident upon both chemical and microscopic tests. There is a small cavity in its interior eccentric in position. This cavity in all probability represents the former nucleus about which the phosphatic salts were deposited, possibly a fragment of mucus or blood which had subsequently disappeared by desiccation or absorption.—*The Clinic*, Nov. 2 and 16, 1872.

This operation, which was discussed by Hippocrates, and is said to have been performed in the latter part of the seventeenth century by an Italian surgeon, named Marchetti, has been recently advocated by Mr. T. Smith (see *Med.-Chir. Trans.*, vol. lii., also this Journal for July, 1869, p. 259, and April, 1870, p. 471).

The diagnosis of the existence of a renal calculus is not always devoid of difficulty, and it will be remembered that Mr. Durham (*Med. News*, 1870, p. 61) on one occasion performed nephrotomy, but no calculus was present.

*Fibro-Cystic Bronchocele.*—In the original department of this number will be found an account of an enormous bronchocele, removed by Mr. T. Holmes. Four other cases of bronchocele, but of much less dimensions, have recently been reported, one in the *Canada Medical and Surgical Journal* (November, 1872), by Dr. GEORGE E. FENWICK, Professor of Clinical Surgery in McGill's College, two in the *Photographic Review* (December, 1871), by Dr. MAURY, of Philadelphia, and one by Dr. HODDER, of Toronto, in *Canada Lancet*, Dec. 1872.

The subject of Dr. Fenwick's case was a woman aged 21, in whom the tumour appeared when she was three years of age, and continued to grow until the last four years. When admitted into Montreal General Hospital, and seen by Dr. F., it consisted of three lobes, a huge central mass and two lateral, measuring 17 $\frac{1}{2}$  inches in circumference. There was considerable pulsation of the arteries, and the veins were large and tortuous. The central mass was tapped with a small trocar and about two ounces of bloody serum was removed; after which the cyst was injected with tincture of iodine. The same operation was performed at two other points. The difficulty of respiration subsequently increased, and it was decided with the consent of the patient to remove the tumour. Dr. F. operated on the 8th of June, according to the plan recommended by Prof. Greene in the number of this Journal for January, 1871. The incision was made in the median line, extending the whole length of the tumour to the upper part of the sternum, getting down at once to the tumour, and dividing what Greene terms its "fascia propria." There was no difficulty then in enucleating the mass; it was rapidly turned out with the finger, the dissection being carried outwards. In getting to the posterior edge the veins appeared large in size, being spread out and at the same time incorporated in

the mass of the tumour. It was at this point that the difficulty arose, in continuing the dissection with the finger backwards, the veins seemed to tear like paper, and the effusion of blood was sudden and enormous in quantity. This, however, was controlled after some difficulty, and ligatures applied. The superior and inferior thyroid arteries which appeared small were ligated; the mass was found to extend in the interspace between the trachea and œsophagus, and the latter was exposed for about three inches of its extent. Coming to the pedicle, which appeared adherent to the side of the trachea, and which was about the size of two fingers, it was decided to cast a ligature around it and remove with the knife the tumour. This being done no further hemorrhage occurred. The edges of the wound were brought together by eight interrupted sutures, and the patient removed to bed. The tumour was nodulated, composed of three distinct masses, the central one of which, when cut into, consisted of a cyst which held about six ounces of fluid. Before opening the cyst the tumour was found to weigh 2 lbs. 14 oz., and consisted almost entirely of hypertrophied gland structure intermixed with fibroid tissue. An hour after the operation, the report states, the pulse was 90, regular, but weak. The girl complained of great thirst; brandy and water with beef essence had been ordered, but were rejected, there being considerable irritability of the stomach. Iced champagne was substituted for the brandy.

The patient rallied well, and was discharged with the wound closed on the 29th of July.

Dr. F. says that if called on to operate on a similar case he would separate the mass first from its central attachment, dissecting beneath the tumour from the median line, by which means the operator would arrive at the origin of its vascular supply and thus avoid much of the effusion of blood which, to a certain extent, is unavoidable.

The subject of Dr. Maury's case was a woman aged 23, in whom the tumour first appeared when she was nine years of age, since which it had gradually increased. Two attempts were made to "produce an impression on the morbid mass by electrical cauterization," but without effect, and it was then decided to resort to the knife. "The patient being fully influenced by chloroform, an incision, five inches in length, was made over the most prominent part of the growth, parallel with its perpendicular diameter, and this joined by a horizontal one of sufficient extent to allow free manipulation during the operation. The firm, dense capsule of the gland was soon reached by division of the bands of fascia overlying. It was soon seen that the thyroid arteries were greatly enlarged, more especially the right and left inferior. All these were well secured in turn, as likewise all smaller vessels. In this way *absolutely* all hemorrhage was avoided. The cyst was then peeled away from the trachea for the extent of three and a half inches. The sheath of the right carotid was undisturbed, but fully exposed, as also that of the left. The wound was closed, no hemorrhage followed, and the patient did well, excepting a slight attack of erysipelas, which came on three days after, and, queerly enough, involved the face and portions of the neck to the entire exclusion of the wound."

Dr. M. states that he "removed, some weeks after, another very large growth of the same kind in the same manner, and with the best result, as respects hemorrhage and shock. The patient did well for twenty-one days, and was then seized with pneumonia and perished after all the ligatures had become detached and the wound almost healed."

The *Canada Lancet* for December, 1872, contains a report of a case of fibro-cystic disease of the right half of the thyroid gland removed, by Dr. EDWARD M. HODDER, Consulting Surgeon to the Toronto General Hospital. In this as in the two previous cases, we have to regret the brevity of the account, and as regards this last the report appears to have been rather prematurely published, as at the latest date, though the patient is said to have been cured, the ligatures had not separated.

The subject of this case was a girl aged 18, upon whom an operation had previously been attempted by a surgeon, who supposed the tumour to be a simple cyst, but on finding the attachments much firmer and deeper seated than he expected, and having divided the external jugular vein at an early stage of

the operation, wisely contented himself with cutting off the upper portion of the tumour, securing the vessels, and closing the wound.

She then applied to Dr. Hodder, who operated on the 31st of October, 1872, as follows:—

Chloroform being given, "I commenced the incision downwards and forwards in the course of the cicatrix, to obviate greater deformity, and then directly downwards, and by careful dissection I soon exposed the upper and more projecting part of the diseased mass. I continued my dissection to the lower angle of the wound, and was ably assisted by Dr. Temple, who retracted the more important vessels and nerves, so as to enable me to get to the pedicle or root of the gland. Although the body of the gland did not partake of the fibro-cystic condition of the upper and more projecting portion, yet it was very considerably enlarged, projecting backwards and inwards, pressing strongly upon the œsophagus, larynx, and upper part of the trachea, and was very firmly attached to the lower and posterior border of the thyroid cartilage, and to the crico-thyroid membrane. During the latter part of the operation I was materially assisted by Dr. Temple seizing the body of the gland with a pair of toothed forceps, and drawing it outwards, which enabled me to get at the root or firmest attachments.

"Its removal required careful and minute dissection, and was effected in great measure by the finger and handle of the knife, with occasional touches of the blade.

"There was a good deal of hemorrhage during the operation, principally venous, but, the external jugular having been divided in the first operation, I was saved from the risk of dividing that vessel. Two arteries, the superior and inferior thyroid, alone required ligatures, and a few twigs were twisted.

"After the removal of the gland, the carotid, pneumogastric, œsophagus, the thyroid and cricoid cartilages were distinctly seen; the wound was left open until all oozing had ceased, and was then closed by several points of suture; a piece of dry lint, with a few strips of plaster and a bandage, completed the dressing.

"After the removal of the tumour it was found to be the right lobe of the thyroid gland entire, the upper half being about the size of an egg, and fibro-cystic in character, which formed the projecting portion, the cysts containing a grayish substance somewhat like sago in appearance and consistence, the upper and larger cyst having been torn by the forceps during its removal; the lower half, and that portion which pressed upon the œsophagus and trachea, was about four inches long, and appeared healthy although very much hypertrophied."

The latest report is Nov. 20, only twenty days after the operation, when it is stated, "Ligatures still firm, in every other respect quite well."

*On Ovariotomy.*—Dr. J. MARION SIMS contributes (*New York Med. Journ.*, Dec. 1872) an interesting paper on this subject. He thinks the clamp has seen its best days, and, when the question of the management of the pedicle is positively determined, he has scarcely a doubt that it will be against the principle of drawing the pedicle externally.

"For twenty years," Dr. Sims says, "I have advocated the plan of tying the pedicle with silver wire, which I felt sure would become sacculated, and therefore produce no harm; and for the last ten years this plan has been followed by Dr. Emmet and myself. . . . So far, Dr. Emmet and myself have every reason to be satisfied with our method of dealing with the pedicle. But I have no prejudices whatever on the subject, and I think the time may possibly come when clamps and ligatures, whether of twine, catgut, or wire, may give way to torsion of the arteries, or to their obliteration by the enucleation of the pedicle from the coats of the cyst."

Dr. Sims thinks that if we desire to reduce the mortality of ovariotomy we should leave the pedicle and turn our attention to another quarter. From a study of his own *post-mortems* and those of Mr. Spencer Wells,<sup>1</sup> he arrives at the conclusion that "septicæmia is the great outlet of life in ovariotomy."

<sup>1</sup> Diseases of the Ovaries. By T. Spencer Wells.

In Mr. Spencer Wells's twenty-eight fatal cases in which *post-mortem* examinations were made, two died of tetanus, and, of the remaining twenty-six, "two had pyæmic poisoning, and twenty-four presented the infallible *post-obit* evidences of septicæmia. . . . In every one of my seven *post-mortem* examinations, and in every one of Mr. Spencer Wells's twenty-six, we find uniformly the same pathological appearances. In all of them we find a quantity of reddish serum, or grayish turbid serum, or fetid serum, or putrid serum, or aerimonious serum, in the peritoneal cavity; and in cases slowly dying of pyæmia we invariably find pyogenic reservoirs in the pelvic cavity. Is it not logical to infer that these pent-up fluids are the causes of the blood-poisoning that so uniformly, I should say universally, attends fatal cases of ovariotomy?

"I do not pretend to deny that death may occur from shock, or from hemorrhage, or from heart-clot, or from exhaustion, or even from peritonitis; but I feel sure that these, independently of blood-poisoning and its legitimate causes, are of comparatively rare occurrence. If, then, we have such an almost universal evil to deal with as septicæmia, and if that septicæmia is, in thirty-seven cases out of thirty-nine, clearly traceable to the poisonous fluids effused in the peritoneal cavity, is it not self-evident that the indication, both of prevention and cure, is to drain off these poisonous fluids in the speediest and most direct way possible?"

Dr. Peaslee recommended washing out the peritoneum with disinfectants, and began this practice in 1855. In his recent book<sup>1</sup> he defines the manner, conditions, and advantages of using intra-peritoneal injections.

"To him [Dr. Peaslee] we owe the principle of intra-peritoneal medication. I claim only to be his coadjutor. But the rule that he would establish for exceptional cases I wish to make applicable to all alike; and, instead of washing out the peritoneal cavity at the top, I propose to open it at the bottom, as he did in 1855, and let the fluids run out spontaneously and continuously. The natural outlet of the peritoneal cavity is through the Douglas *cul-de-sac*.

"If the drainage through this *cul-de-sac* be made promptly and thoroughly, there is every reason to believe that pyæmic collections, such as happened to Mr. Spencer Wells, could never take place; and that septicæmic poisoning would in a great measure be prevented.

"What I propose, then, is simply this: to puncture the *cul-de-sac* of the vagina behind the cervix uteri, and to pass a tube of some sort into the peritoneal cavity to drain off any effusion that may take place in said cavity. I propose to do it in every instance, whether there are adhesions or not. Patients may and do die of septicæmia after ovariotomy, where there are no adhesions. Hence it is safe to make this puncture in every case, whether simple or complicated. If in three or four days we see that there is no necessity for this precautionary step in the operation, we have nothing to do but to remove the tube, and in twenty-four hours the little puncture closes up spontaneously. Where is the harm, then, of making the puncture? It adds nothing, not the prick of a pin, to the danger of ovariotomy. It cannot, possibly, do the least harm, and it may be the means of saving life. It may be said that it is time enough to make the puncture when bad symptoms arise. But we know that many cases go on very well for two or three days, when, all at once, there is an explosion as it were; the pulse suddenly jumps from 100 to 120, and then to 140, with vomiting, tympanites, hot skin, and oppressed breathing; the pulse gets quicker and more feeble, and the patient sinks exhausted in sixty or seventy hours after operation. We are in doubt what else to do but to give stimulants; and it is too late to be operating in the dark on a dying patient's vaginal *cul-de-sac*. During the ovariotomy it would have been nothing to puncture it, but now it becomes a difficult thing to do, and we naturally shrink from tormenting one in such extreme agony and prostration, unless we should feel sure of finding the cause of the evil, and of warding off the dangers of the moment. But in my own mind I am sure of what generates these alarming and too often dangerous symptoms, and I beg to urge upon my brethren, with all the earnestness of a deep-settled conviction, the propriety, the necessity, the

<sup>1</sup> Ovarian Tumors. By E. Randolph Peaslee.

safety, and the efficiency, of resorting to this drainage by the vagina in every case of ovariotomy, both as a preventive and curative agent against septicæmia, which, I am sure, is the great danger in this formidable operation."

Since May, 1872, Dr. Sims has performed four ovariotomies with the drainage plan.

*Absorption of the Humerus after Fracture.*—From the *Boston Medical and Surgical Journal* (Oct. 10, 1872) we glean the following notes of a case which is stated on excellent authority to be "without parallel in the records of surgery":—

In 1819, Mr. C. B., at the age of 18, fractured his right humerus near the middle. Subsequently, and before he had recovered entirely, he broke his arm at the same point, a second time, while holding a plough in the field. A short time afterward he slipped on the floor and fractured the bone a third time. The last accident was not more than two months from the occurrence of the first. After this final fracture, there was never any tendency to a union of the broken bone, but the humerus began slowly and painlessly to disappear, small fragments of it breaking off, without accompanying inflammation of the soft parts, or any fistulous or suppurating sore, or orifice. The skin of the arm was never broken, and no piece of bone or part of the humerus was ever taken away, or came out unassisted. For four years, Mr. B. did no work, but the process of absorption covered a period of twelve years, at the end of which time the limb had attained a condition in which it permanently remained until the day of his death, at the age of 70 years. This occurred at the Boston Lunatic Hospital, on February 11th, 1871, and was caused by double pneumonia. He had been an inmate of this Institution, at intervals, for four years and three months, but, except in mental condition, was, as he had always been, in excellent general health, with no local affection of his osseous system, except in the arm already alluded to, and capable of a very considerable amount of manual labour, which he willingly and readily performed.

Dr. C. B. Porter, Demonstrator of Anatomy in the Medical Department of Harvard University, gives the following description of the specimen:—

"All traces of the humerus are obliterated, except its two extremities. The remains of the lower extremity consist of a small, somewhat irregular, pyramidal piece of bone and cartilage, an inch and a half long, three-quarters of an inch wide at its base, its apex pointing upward and somewhat outward. This articulates in a very imperfect way with the radius and ulna, both of whose upper extremities are modified by absorption, and their shafts fused together for their upper third into one slender bone, tapering off in a small and imperfect olecranon. This ankylosis at the upper part of the forearm reduces the rotation of the radius on the ulna at the wrist to a very slight motion. The remains of the upper extremity of the humerus consist of a thin, auricular-shaped plate of bone, two inches long and one inch wide, in close relation with the glenoid cavity, but presenting no real articular surface. On the outer and upper edge of this piece are inserted the tendons of the supra- and infra-spinatus and teres minor, defining this as the greater tuberosity. Just below this is another bony fragment, an inch long, half an inch wide, slightly concave, into the anterior border of which is inserted the tendon of the pectoralis major. Into the inner and upper border is inserted the tendon of the teres major. The latissimus dorsi, which normally should be inserted with that of the teres major, is inserted, however, into the lower border of the teres major, midway between its origin and insertion. A strong, fibrous band connects it with this last-mentioned fragment of bone. A third piece, a small nodule, four lines long by two lines wide, is attached to this plate on its upper and internal aspect by a tendinous band; the tendon of the subscapularis muscle is inserted into this nodule, characterizing it thereby as the lesser tuberosity of the humerus. The articular surface of the glenoid cavity is obliterated; the bone itself only slightly if at all modified. The intervening space between the upper and lower fragments of the humerus is occupied by a fibro-muscular mass, and about half the normal length of the humerus, judging from the size of the scapula and the length of the forearm. This is made up, principally, of the brachialis anticus and the triceps,

united closely to each other. The biceps, lying anterior to this, arises and is inserted normally. The deltoid and coraco-brachialis arise normally, and are inserted, the former into the outer, the latter into the anterior surface of the mass described. The scapular head of the triceps arises normally; the other two heads are blended in this central mass, which gives origin, also, to the brachialis anticus in front. These two muscles, as they approach the elbow-joint, surround the remains of the lower end of the humerus and pass onward to become blended with the origins of the extensor and flexor muscles of the forearm, with no definite point of insertion. The supinator longus and the flexor carpi radialis longior take origin from the fibro-muscular mass. The humeral origin of the remaining muscles of the forearm is blended with the insertion of the muscles of the arm. All the bony prominences at the elbow-joint are so modified and absorbed as to bear no resemblance to the properly-developed bones. The muscles thus described, although somewhat fatty and atrophied, still present a very fair amount of development, and are well defined and readily distinguished and separated from each other.

"The arteries, veins, and nerves are not preserved in connection with the muscles, but at the time of the dissection a careful examination revealed no traces of a departure in them from an apparently natural and healthy condition."

The serviceableness of this limb has been alluded to. Mr. W. E. Moseley, Resident House Pupil at the Lunatic Hospital, states that Mr. B. could hoe, rake, shovel, sweep, cut wood, carry a large pail of water, hold a knife at the grindstone, and write a good hand. (He used to write letters for other patients.) He took care of his own room and made his own bed. By twisting the upper part of his arm, he could use his fingers well enough to tie his neck handkerchief. He could not flex the forearm upon the upper arm at will, nor could he extend the forearm when flexed, unless in a position in which the weight of the arm would make it drop. The muscular power of the arm was very considerable.

*Hydrocele of the Seminal Vesicle.*—Prof. N. R. SMITH, of Baltimore, records (*Lancet*, Oct. 19) the following interesting case of this:—

Prof. S. was called in consultation to a gentleman represented to have retention of urine. "I found," Prof. S. states, "a large pyriform tumour occupying the cavity of the pelvis, and also that of the abdomen, higher than the umbilicus. There was no gaseous resonance over any part of it, but when percussed it sounded and vibrated like a fluid in a tensely distended sac. The patient was passing, every hour, half an ounce of urine perfectly normal in character. The attending physician assured me that he had repeatedly introduced the catheter into the bladder and had not drawn more than an ounce of urine; not in the least reducing the volume of the tumour. Still I had not the slightest doubt that I was dealing with a distended bladder. . . .

"I was greatly surprised, then, when on introducing a long catheter fairly into the bladder there flowed only an ounce of perfectly normal urine. On placing my hand on the tumour, I found it not in the least reduced in size, and, as I moved the catheter, I distinctly felt the instrument gliding about in close contact with the walls of the belly, being pressed forward by the pyriform tumour.

"Here, for a moment, we were completely at fault—the tumour was not the distended bladder, but was manifestly a cyst, containing a fluid. It was posterior to the bladder, and displaced that organ forward. After another careful exploration externally, I introduced my finger into the rectum, and found the prostate normal; but, on carrying the finger deeply and to the left of it, I at once encountered an elastic tumour communicating the sensation of a sac tensely distended with fluid. On palpating with the other hand on the abdomen, the vibratory motion of a fluid was manifest.

"The matter was now clear. We had a hydrocele of the left seminal vesicle. We at once resolved on tapping through the rectum. This I effected with an ordinary straight trocar. On withdrawing the stylet, the fluid issued with force, and, in a few minutes, we drew off ten pints of a brown serous fluid, bearing no resemblance to urine.

"No unpleasant symptoms followed, but in some four weeks it again filled and was tapped by my colleague in the case. After this there was no recurrence. . . .

"The facts which I have related will, I trust, aid some professional brethren in diagnosing a case of such rare occurrence."

*Puncture of the Bladder above the Pubes.*—Dr. JAMES I. LITTLE records (*New York Med. Journ.*, Nov., 1872) a case of retention of urine from enlarged prostate, in which he punctured the bladder fourteen times with a capillary aspirator. Subsequently a catheter could be introduced by the urethra. "No tenderness followed the punctures, and in a few days all traces of them had disappeared. The patient at last accounts was passing the greater portion of his urine without the catheter. No cystitis had taken place. During the time the aspirator was being used, he was free from all constitutional disturbance.

Dr. L. suggests the following rules for this operation:—

"1. The patient should lie on his back, and, if the bladder is not much distended, the operation will be facilitated by slightly elevating the patient's hips by means of a pillow placed beneath them.

"2. The punctures should be made on or near the median line, from one inch to one inch and a half above the pubes, and should be made each time in a different place. In the case described, the punctures were about a line apart and extended over an area about half an inch in diameter. Mr. Watelet recommends the No. 2 capillary trocar, but, in cases where cystitis exists and the urine is loaded with pus, mucus, or the phosphates, one of the larger trocars may be used with safety.

"3. The bladder may, when necessary, be washed out by filling the cylinder with water from the basin, and reversing the action of the instrument, without withdrawing the trocar from the bladder."

Another case of retention of urine from enlarged prostate is recorded (*Med. Record*, June 1, 1872) by Dr. H. K. Clark, of Geneva, in which six or seven punctures were made above the pubes with a trocar and canula *one-twelfth* of an inch in diameter. Each puncture was made without regard to the point of previous punctures, and the canula withdrawn as soon as the bladder was emptied. No unpleasant effect followed these operations.

*Methods of Operating for the Extraction of Cataract.*—Dr. JOHN GREEN, by request of the St. Louis Medical Society, gave a short sketch of a few points in Ophthalmology which had come under his notice during his recent visit to London, in attendance upon the International Ophthalmological Congress.

With regard to the methods of operating for cataract, he said: "The commanding authority of Professor von Graefe, during the latter years of his life, forced, as it were, upon the whole profession his peculiar operative method for the extraction of senile cataract. With the exception of very few operators, conspicuous among whom may be mentioned Professors von Hasner, of Prague, and Williams, of Boston, the 'peripheric-linear' operation of von Graefe had come to be practised by all the world, and was regarded by many as the crowning perfection of this branch of ophthalmic surgery. The two years which have elapsed since von Graefe's death have sufficed to change the practice of nearly all Europe in this operation, and it may safely be said that the 'peripheric-linear' operation, performed strictly according to the rules so carefully laid down by its author, is already almost a thing of the past. Not but that great results have sprung from the grand enthusiasm and untiring zeal of the great master, in perfecting this his last gift to the profession, for to him, more than to any other surgeon living or dead, we owe the present emancipation of the ophthalmic art from the restraint of authority, and in nothing more than in the manner of operating for cataract.

"The practice of the leading ophthalmic surgeons of Europe to-day would seem to show that the precise form and position of the external incision, and the performance or non-performance of iridectomy as a part of the operative procedure, are matters which are rather to be left in each case to the enlight-

ened judgment of the surgeon, than to be settled beforehand according to any general rule."—*St. Louis Med. and Surg. Journ.*, Nov. 1872.

*Ligation of the third portion of the Subclavian Artery and Amputation at the Shoulder-joint.*—The following case of this is related by Dr. ALFRED KINNEY, of Portland, Oregon:—

J. S., æt. 35, a healthy Irish laborer, was run over by a railroad car, at the East Portland depot, June 6th, at 11 A.M. A physician saw him immediately afterward, at the Railroad Hospital, and controlled the hemorrhage until my arrival, an hour later. I found the bones and muscular tissues of the left arm and forearm completely crushed; small fragments of the humerus having been driven in and around the shoulder-joint, lacerating the axillary artery as far up as its origin.

On account of the very extensive laceration of the axillary artery, we determined, during a hasty consultation, to ligate the subclavian before removing the arm, which I did in the third portion, assisted by Drs. Rafferty and Aug. C. Kinney; and afterwards severed the arm at the shoulder-joint.

Having removed the spiculæ of bone, and cut away all the badly lacerated and extravasated tissues from the shoulder, we trimmed the least contused portions of the integument into flaps, much like those of the Baron Larry operation. The wound was united by silk sutures, leaving an opening at the most dependent part for drainage, and dressed with oakum and a weak solution of carbolic acid. The patient, who was suffering from the severity of the shock, was given stimulants in large doses.

There were no other symptoms than those usually following such severe injuries, until the fifth day, when gangrene commenced in the wound: the shoulder in the course of a few hours becoming œdematosus; the integument changed to a darker colour, and a thin, offensive discharge ran from the wound. Fever was very high and the pulse 140 per minute. Immediately the partially united wound was laid open by free incisions, and thoroughly washed out with a strong solution of carbolic acid. The gangrene ceased, and in a few days the mortified parts began to separate. The patient improved from this time. Enough integument was left, after the separation, to cover the bony prominence, excepting a chasm anteriorly, which filled up with granulations and cicatrized over within two months after the time of the accident.

The ligature came away from the subclavian on the 17th day. The patient is now entirely well.—*Pacific Med. and Surg. Journ.*, Nov. 1872.

*Amputation through the Metatarsus.*—Dr. G. W. TOPPING records (*Michigan Univ. Med. Journ.*, July, 1872) a case in which this operation was performed.

F. J. P\_\_\_\_\_, æt. 18, on the 4th of January, 1870, by a single blow from an axe, severed the first four toes in a slanting direction, partly through the heads of the metatarsal bones, and partly through the metatarso-phalangeal articulation. The detached portion hung only by a piece of skin an inch in width, and the bones protruded so as to render amputation higher up necessary.

An oval flap was dissected from the dorsum of the foot, the metatarsal bones sawn through their middle, and a large flap taken from the planter surface by cutting from within outward. Two arteries only required ligatures. The wound healed very quickly, leaving a good sound stump, upon which he walks with but a slight limp, and does all kinds of farm work, such as plowing, dragging, &c., as well as before the accident, without producing any irritation of the stump. There is no dragging of the stump and consequent liability to ulceration, as is so commonly the case after Chopart's operation.

I am not aware that any writer upon surgery has either recommended or described the above operation. The nearest approach to it is, what is known as Hey's, or, by some, Lisfranc's, operation through the metatarso-tarsal articulation, or, as it was sometimes performed, by sawing off the head of one or more of the metatarsal bones. This (Hey's) operation has seldom been performed, even in cases where it would have sufficed the purpose of amputation.

## BOYLSTON MEDICAL PRIZE QUESTIONS.

The Boylston Medical Committee, appointed by the President and Fellows of Harvard University, announce that

The following are the questions proposed for 1873:—

1. Electro-Therapeutics.

2. The Value of Chemistry to the Medical Practitioner.

Dissertations on the above subjects must be transmitted, postpaid, to John Jeffries, M.D., Boston, *on or before the first Wednesday in April, 1873.*

The author of a dissertation considered worthy of a prize, on either of the subjects proposed for 1873, will be entitled to a premium of *one hundred and fifty dollars.*

The following are the questions proposed for 1874:—

1. The best Methods of Preventing the Development and Spread of Smallpox.

The author of a dissertation on this subject, considered worthy of a prize, will be entitled to a premium of *two hundred dollars.*

2. The Development and Extension of Malignant Disease.

The author of a dissertation on this subject, considered worthy of a prize, will be entitled to a premium of *one hundred and fifty dollars.*

Dissertations on these subjects must be transmitted as above, *on or before the first Wednesday in April, 1874.*

For a more detailed announcement, see Boston Medical and Surgical Journal of June 13, 1872 (David Clapp & Son, Publishers, 334 Washington Street, Boston), or address

R. M. HODGES, M.D.,  
*Secretary of the Committee.*

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## CONTRIBUTORS TO THIS VOLUME.

HARRISON ALLEN, M.D., *Professor of Comparative Anatomy and Zoology in the University of Pennsylvania.*

JOHN ASHHURST, JR., M.D., *Surgeon to the Episcopal Hospital, Philadelphia.*

WALTER F. ATLEE, M.D., *Surgeon to St. Joseph's Hospital, Philadelphia.*

G. W. BIGGERS, M.D., *of La Grande, Oregon.*

ROBERT BRIDGES, M.D., *Prof. of Chemistry in Phila. College Pharmacy.*

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## TO READERS AND CORRESPONDENTS.

All articles intended for the *Original Department* of this Journal must be contributed to it *exclusively*. The insertion elsewhere of *abstracts* of papers prior to the publication of the entire paper in this Journal is a violation of this rule. As original articles are accepted only on this condition, we consider those who favour us with contributions to be bound in honour to conform to it.

Contributors who wish their articles to appear in the next number, are requested to forward them before the 1st of May.

Compensation is allowed for original articles and reviews, except when illustrations or extra copies are desired. A limited number of extra copies will be furnished to authors, provided the request for them be made at the time the communication is sent to the Editors.

We shall be pleased to return manuscripts not used, if their authors will inclose the requisite postage-stamps, but we cannot engage in future to preserve unclaimed manuscript longer than twelve months.

The following works have been received:—

Nouvelles Etudes sur le Choléra Asiatique. Le Sulfure Noir de Mercure proposé pour préserver l'Italie de ce terrible Fléau, par M. le Docteur SOCRATE CADET, Prof. Ordinaire de Phys. à l'Université Royale de Rome. etc. Rome, 1872.

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3. <i>Transactions of the State Medical Society of Michigan</i> for the year 1872. 8vo. pp. 119.	
4. <i>Transactions of the Medical Society of New Jersey</i> , at its One hundred and sixth Annual Meeting, held May, 1872. 8vo. pp. 310.	
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OF THE

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THE  
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ART. I.—*On the Difficulties attending the Diagnosis of Aneurism from Abscess, being a Contribution to Surgical Diagnosis and to Medical Jurisprudence.* By STEPHEN SMITH, M.D., Surgeon to Bellevue Hospital, New York.

ANEURISM may present to the practitioner at one time the most simple and at another the most difficult problem in the art of diagnosis. This fact is due to the remarkable changes which the tumour is liable to undergo as it progresses to a favourable or a fatal termination.

To appreciate these changes, we have but to consider that an aneurism results from a lesion of the coats of an artery; this lesion may be traumatic or pathological; when once the walls of the artery begin to yield, the current of blood makes greater and still greater pressure upon some part of the weakened walls until a cavity is formed, filled with blood, with a corresponding tumour externally; its coverings may be all the coats of the artery (*fusiform*, if it involves the entire artery; *true*, if only at one point); or one coat (*false*); or none of the coats (*consecutive* or *diffused*), according to its cause and the stage of its progress; its contents may be entirely fluid, or partially fluid, or nearly or quite solid; it may enlarge slowly or rapidly; it may terminate fatally in rupture of its coverings, or in recovery by the consolidation of its contents.

It is evident, therefore, that, in the successive changes through which an aneurism may pass, every variety of intermediate condition may be found. Hence a great variety of other diseases may be simulated with more or less accuracy. These varying conditions and this instability of symptoms constitute the real sources of error in the diagnosis of aneurism.

Preliminary to this inquiry it is important to determine the value of the so-called scientific tests employed in diagnosis. They may be briefly stated as follows: 1. A tumour in the course of an artery; 2. Pulsation synchronous with the heart, and of an expansive character; 3. Cessation of pulsation, when the artery is compressed on the cardiac side, with partial subsidence of the swelling; 4. A bruit heard with the pulsation; 5. Exploration.

In considering the value of these conditions, it is proper to state that aneurism has no pathognomonic sign or symptom; it may exist with all these symptoms present, or with a portion of them present, or with none of them present. Again, these symptoms may in whole or part be present when there is no aneurism. In regard to the special importance of individual symptoms, it may be stated that:—

1. A tumour situated in the course of an artery is of frequent occurrence without the presence of aneurism. In itself, the symptom is of no positive value.

2. Pulsation may or may not be present when aneurism exists; to be of value when present it must be expansive, and yet expansive pulsation may be present in an abscess surrounding an artery, and no aneurism be present.

3. Cessation of pulsation will occur in any tumour or swelling situated over an artery when compression is made on its cardiac side; subsidence of the swelling on pressure may not occur in aneurism, and may occur in abscess, as will be seen.

4. A bruit may or may not be present in aneurism; when present it is variable in its character; it may be present when any tumour or abscess is situated over an artery.

5. An exploratory puncture may fail to give exit to blood in an aneurism, and may give a jet of blood in several kinds of tumour.

It is apparent, therefore, that the several "scientific tests" or symptoms of aneurism are extremely variable, and of doubtful value when present.

In the diagnosis of aneurism, as in the diagnosis of diseases in general, an accurate history of the case is a condition precedent to a correct understanding of the essential features of the malady. In many doubtful cases of aneurism it is more important than any or all of the scientific tests that may be applied. In some cases it affords the only clue to the solution of the difficulty, for it may settle the question as to the early existence of symptoms now absent, and such as determine the nature of the disease, viz., pulsation, etc.

Errors in diagnosis where the surgeon has overlooked the early history are not unfrequent, and are justly regarded as inexcusable, because they prove culpable negligence.

The truth is that it is only by grouping together these symptoms, and carefully discriminating as to their special value in each case, that an

opinion can be given. And even then, as will appear, the most eminent surgeons have failed, and have made fatal mistakes. It is probably true that these errors were more common formerly<sup>1</sup> than at present; especially previous to the employment of auscultation in the diagnosis of aneurism, but that they are still frequent, the records of clinical surgery abundantly prove.

Aneurism is more frequently mistaken for abscess than for any other disease. The liability to error grows out of the fact that in the various phases of its growth an aneurism may assume all the most marked features of an abscess, and lose its own characteristic symptoms. It follows, also, that an abscess may simulate an aneurism in all its essential peculiarities, and render a definite and accurate diagnosis all but impossible. Thus an aneurism may form without pulsation or a bruit, and may have heat, pain, and fluctuation, while an abscess may form with pulsation and a bruit, with an inconsiderable degree of heat and pain. Again, an aneurism may form with an abscess overlying it, and the symptoms of the two may become inextricably intermixed. Finally, an abscess may form which subsequently opens into an artery, and thus suddenly assumes all the apparent conditions of an aneurism.

In grouping the cases presenting difficulties of diagnosis of aneurism from abscess, we may arrange them according to the symptoms which they present.

1. *An aneurism may exist, when the history and symptoms indicate abscess.*—Cases of this kind are by no means uncommon, and baffle the skill of the most experienced surgeon in his efforts at correct diagnosis. In general the true nature of the case is not even suspected, but even if the surgeon is suspicious that an aneurism is masked by the symptoms of an abscess, he cannot assure himself of the fact, except by a sufficient exploration to fully expose the contents of the cavity.

De Haen reported the following case:—

A man was attacked with erysipelas in the foot, which successively extended to the leg and ham; the swelling, in this last region, did not disperse, and a tumour formed, that appeared to pass very slowly to a state of suppuration. Near two years after, fluctuation was manifest, but there was not the slightest pulsation. A small opening was made in the centre, and pus was discharged: the tumour did not much diminish in size. Things remained in this state a few days; but, eight days after, a hemorrhage unexpectedly came on and the patient expired. The dissection proved that there was an aneurism; the sac and coagulum of which were surrounded by an abscess.

In this case there could scarcely have been a suspicion of aneurism. The early history of a simple erysipelas, and the subsequent evidences of suppuration of an indolent swelling which seemed to him formed as a result of previous inflammation, apparently left no doubt of the existence of an abscess. There was not a symptom of aneurism. Auscultation might

<sup>1</sup> See Ribes, Mém. et Obs. d'Anat. et de Phys., Paris, 1841.

have aided in correcting the errors, it is true, but even that symptom would, under the circumstances, have been of comparatively little value.

Equally difficult of diagnosis was the following case reported by Freer (*Obs. on Aneurism*) :—

An old woman who had been much affected with rheumatism had a tumour on the wrist, at the point where the radial artery turns round to the thumb and forefinger. The tumour originated spontaneously, was inflamed, had no pulsation, and all the appearances of an indolent abscess. Under the notion of its being such, a lancet was plunged into it, but, instead of matter, blood flowed per saltum, and was restrained only by the tourniquet, the artery was immediately taken up above the puncture, and the disease was cured.

In a case of this kind none of the scientific tests could avail anything except, perhaps, puncture of the tumour. The history and symptoms alike point to the same conclusion, and a mistake was unavoidable.

A much more formidable case occurred in the practice of Sir C. Bell, which is related in his *System of Surgery* :—

A man, æt. 35, received an injury about the knee by a fall from a man's back ; he had lameness and pain, increased by walking or standing, for six weeks, when œdema of the calf appeared, and in a fortnight he was unable to walk from pain ; the tumour increased for eight weeks, extending so far upwards as to affect the greatest part of the thigh, attended with excessive pain. The tumour was now uniform, extending from the inside of the knee to within a small space of the groin ; integuments of their natural colour ; there was fluctuation on the inside of the thigh, but no pulsation in any part of the limb ; on its superior, posterior, and lateral parts the tumour was of a stony hardness. The leg did not appear to be swollen at all ; he had great pain, no rest, a slow fever, was pale and sallow. In order to afford relief Mr. Bell made an incision into the most prominent part of the tumour, upon which there gushed out a large stream of thin florid blood, revealing the true nature of the disease, which till now could not be ascertained by any peculiar symptom distinguishable by the touch or perceptible to the eye. He immediately amputated the limb, and the patient recovered.

An aneurism may very accurately simulate a psoas, lumbar, or inguinal abscess. If there is no pulsation to attract attention, the tumour may enlarge with symptoms so precisely like those of an abscess forming from caries of the vertebrae that the surgeon may not even suspect the true nature of the disease. And the occurrence of pulsation does not clear up the case, for, as noticed by Mr. Guthrie, the abscess may simulate the aneurism in respect to the most prominent symptoms of the latter.

"The patient shows," he remarks, "a small swelling immediately over the femoral artery in the groin, soft, movable, fluctuating, having a strong pulsatory motion, and unaccompanied by pain. The tumour diminishes on pressure, even in the erect position, and rapidly returns as it would do in aneurism. The pulsation is manifest, but, after the swelling has been diminished by pressure, its sudden resumption of size in the erect position is not accompanied by the peculiar aneurismal pulsatory thrill felt in a preternatural enlargement or aneurism."

He also notices the important fact, that, when the patient is placed in a recumbent position, and the tumour is diminished or removed by pressure, it does not return if the case is one of chronic abscess, as it must do if the case is one of aneurism.

In the following case, though there was a bruit, as appeared after the tumour was punctured, the early history, the symptoms as they were developed in the progress of the case, and all the collateral circumstances, were so entirely those of lumbar abscess that the surgeon was necessarily misled. Even had he suspected aneurism, and, in his examination, had he detected the bruit, the diagnosis could hardly have been other than abscess. The case is reported by Mr. Fearn, *Lancet*, Nov. 29, 1834, p. 346.

"A man complained, two years before his death, of lassitude, pain in the lower part of the dorsal region, and tenderness of the spinous processes of several lower dorsal vertebrae; also dyspeptic symptoms, and pain and numbness of the lower extremities. Several months after, a tumour appeared in the left lumbar region; his sufferings increased; tumour continued to enlarge, and, besides appearing on the back, it seemed disposed to point in the inguinal region, which became very painful, also the thigh; pulse natural. Fomentations, leeches, etc., were applied; swelling attained an enormous size, giving rise to difficulty of breathing from its encroachment upwards. Fluctuation was detected in the back, though there was great difference of opinion as to the existence of fluid in the tumour; as an exploratory measure a puncture was made, and, nothing escaping at first, the lancet was reintroduced when a small stream of florid blood gushed out, at once determining the true nature of the case. The opening was instantly closed, and in a few days healed, no harm resulting from it; but several weeks after, on sitting up in bed, the patient complained of something giving way, became faint and expired. After the puncture was made the stethoscope was applied to the tumour when the most marked 'bruit de soufflet' was heard. The tumour was as large as a uterus at full term, bounded above by the ribs and ensiform cartilage, below by the pelvic cavity, behind by the spine, and extended anteriorly as far as the umbilicus; it adhered to the psoas and iliacus muscles, and passed so far upwards as to impede the expansion of the left lung. The artery first became diseased where it passed the two last dorsal and first lumbar vertebrae, which had been greatly absorbed."

An aneurism of the aorta may also be mistaken for a psoas abscess, the tumour first making its appearance along the course of the psoas muscle. A case of this kind was treated in St. George's Hospital.

The patient was a man thirty years of age, and had fallen, four years before, from a height of fifteen feet. Twelve months since began to suffer from pain in the back, with shooting pains in the legs and cramps of the muscles; had tenderness on percussion over last lumbar vertebra and upper part of sacrum. In the left inguinal region there was a hard swelling simulating a psoas abscess. After rest in bed for a month the swelling diminished slightly, but the pain became more intense. He was suddenly seized with extreme faintness, and died. The autopsy showed an immense aneurism connected with the aorta. —*St. George's Hospital Reports*, 1867, p. 431.

In its progress an aneurism may simulate several different diseases.

"Pelletan (*Clinique Chirurg.*, t. i.) reports the case of a soldier who died of an aneurism of the abdominal aorta which was at first mistaken for rheumatism, but when it appeared in the inguinal region it was diagnosticated abscess, and, finally, aneurism. This patient was attended by Deguise, and the symptoms, as the disease progressed, were such as to mislead him. At first the patient had pains in the lumbar region, then in the hip; then convulsions; finally a swelling appeared in the inguinal region in the course of the psoas muscle; subsequently this tumour pulsated."

The diagnosis of aneurism when situated in the axilla is occasionally

very difficult. This region is far more often the seat of glandular enlargements and suppuration, and hence any swelling in this locality having the ordinary signs and symptoms of abscess without the features of aneurism would be very liable to be diagnosticated abscess, without a thought of aneurism. And even when the "scientific tests" are applied the diagnosis might be left in such grave doubt as to necessitate exploration.

A case is related in the *Cyclop. of Practical Surgery*, in which a tumour of the size of a hen's egg, in the axilla of a woman, gave rise to a variety of opinions as to its nature. It was situated in the course of the artery. One surgeon decided in favour of aneurism, a second of a glandular tumour, and a third was so undecided as to refuse to give any opinion.

Among the numerous cases on record, of erroneous diagnosis of aneurism from abscess in this region, that related by Dupuytren (*Lesions of Vascular System*) fully illustrates the difficulties of diagnosis, and the dangerous consequences of an error. He frankly admits that he failed to employ a test which he believes would have determined the true nature of the disease, viz., pressure upon the artery above the tumour. It is very doubtful, however, whether this test would have sufficiently established the diagnosis to have rendered puncture unnecessary. The history is briefly as follows:—

A woman, aged 69, entered Hôtel-Dieu suffering from two gangrenous sloughs on the inside of the elbow, accompanied by oedema and loss of power of the limb. A fortnight after, she complained of a little swelling about the size of an almond in the axilla of the affected side. The dresser took this for a swollen gland; and, though he could not detect the pulse at the wrist, he attributed this to the oedema, or to ossification or contraction of the artery. Six days later I examined her myself. On feeling the tumour fluctuation was distinct, but no pulsation could be detected. I believed it to be an abscess, and I founded this opinion on the history of the case: the existence of ulcers at the elbow, the marked decrease of suppuration, the rapid development of the tumour, and, finally, the complete absence of pulsation. (To have removed all doubt the artery should have been compressed above the tumour.) Operation was deferred until the following day, when the patient was further questioned respecting the history of her complaint, etc., and her answers appearing satisfactory I took a long, narrow, and sharp bistoury, cautiously passed it into the most prominent part of the tumour, where fluctuation was most apparent; it was followed by a jet of arterial blood: was disposed to ascribe this jet of blood to the section of a superficial branch greatly enlarged by inflammation. The removal of my finger from the orifice, however, speedily satisfied me that I had indeed opened an aneurism; and now, for the first time, I detected a slight quivering sensation in the tumour like that of a body in vibration. She was again questioned, and from her answers, which were now true, we learned that four months previously she had had a fall by which her shoulder was injured. Neither fracture nor dislocation could be detected by a surgeon to whom she applied; but, being dissatisfied, she consulted a bone-setter who said her shoulder was out, and used immoderate violence in pretending to set it. The condition of the arm for which she was admitted was the consequence of this violence; but she dated the origin of the axillary swelling to a fall on the elbow which she had some days subsequent to her admission into the hospital. (p. 35.)

2. *Abscess may exist when the history and symptoms indicate aneurism.*—Abscesses forming in the region of the neck may receive pulsation

from the carotid or subclavian arteries, and thus resemble aneurism in this locality. An abscess forming within the thoracic cavity, and showing itself above the sternum or clavicle, or forming deeply among the muscles of the neck, and appearing over the carotid, might pulsate expansively, and disappear on pressure. Spence (*Lect. on Surg.*) states that he has

"seen a tumour with a very distinct pulsation situated there [over the carotid] which could be made to disappear by gradual compression. In that case the artery was tied, and the swelling seemed to disappear, but after the patient's death it was found that there had been no aneurism at all, that in fact the swelling was a chronic abscess amongst the deep-seated glands along the common carotid trunk, which had passed into the anterior mediastinum so that the apparent repression of the fluids was caused by its passage into the mediastinum."

An abscess may form over the aorta, and so receive its pulsations as to resemble very closely an aneurism. The most remarkable instance of the kind was reported by Warner (*Cases in Surgery*).

"The patient was a boy, aged 13, who had suffered a fracture of his sternum. Two weeks after the accident he came under notice, with a separation of the fractured bone, the interval being occupied by a tumour of considerable size, which contracted and dilated with as much regularity as the heart; it receded on pressure, and on removal of pressure the tumour immediately resumed its former size. The tumour subsequently ruptured, and discharged the contents of an abscess, and the patient recovered."

Cooper (*Surg. Dict.*) states that he saw in Christ's Hospital a large abscess in the situation of the quadratus lumborum muscle which pulsated so strongly that the case was supposed, by several experienced men, to be an aneurism of the abdominal aorta.

3. *The early history alone may indicate the existence of aneurism, all the symptoms being those of abscess.*—In this class of cases all the scientific tests are negative at the time of the examination, but the early history reveals the existence of well-defined aneurism. Errors occurring from a failure to examine thoroughly the early history must be considered avoidable. It is surprising how frequently, in these cases, the surgeon is led into error by passing over the early history in a careless or indifferent manner. Patients generally attach little value to the most important diagnostic features of their cases, while they are inclined to exaggerate the unessential symptoms. But in aneurism they have the requisite knowledge, for such symptoms as the sensation of something giving away, pulsation, etc., are noticed, if ever present, and are not forgotten. To obtain the information, however, requires often the most patient and pains-taking examination, especially when these symptoms have some time previously disappeared, and new and more painful symptoms have intervened.

The first symptom in the history which should arrest attention is the sensation of something "giving away" at the moment of injury, followed generally by swelling. This may be the only feature of an aneurism which can be elicited; it is a most important symptom, and if rightly interpreted may solve the difficult problem.

Dr. Duncan (*Commentaries*) relates the following case: "A man, æt. 45, felt something give way in his right hip; was faint, but for six or seven days followed his occupation; leg and thigh were weak, but without pain; accident treated as a sprain; at the end of three weeks the thigh was considerably swollen, and in ten weeks (when first seen) was much enlarged; leg and foot oedematous; had paroxysms of pain in the leg, as also in the other leg and thigh; nausea and vomiting; occasional delirium; no pulsation or fluctuation; thigh continued to increase, and four months after accident it became very tense, painful, and fluctuating; six weeks later thigh was distended; constant and excessive pain; fluctuation felt in every part from the groin to the knee; a surgeon of skill and reputation examined the limb, who, being uncertain as to the fluid contained in the thigh, opened it by a small puncture, giving exit to a large quantity of blood; death occurred two days after the operation."

Aneurism occurring after a gunshot injury of an artery is occasionally mistaken for an abscess. The injury is generally followed by profuse hemorrhage, showing that an artery has been wounded; subsequently the wound heals, and the patient seems to be effectually cured. After a more or less considerable period swelling again occurs at the seat of the wound, with all the general symptoms of an abscess. This swelling may come on suddenly after exertion, or it may appear slowly; there may be pulsation and bruit, or these symptoms may be absent. In either case, the diagnosis is often involved in doubt. The point of greatest importance in diagnosis is that feature of the early history which proved a former lesion of the walls of the artery. The fact that the artery was once impaired by a wound which subsequently healed gives great certainty to the conclusion that a tumour forming at that point is aneurismal, whether the ordinary signs are present or not.

During the riots in New York, a man was wounded in the middle region of the thigh by a musket shot, the ball passing in the direction of the femoral artery. Profuse hemorrhage occurred, but it was controlled by pressure. He recovered and resumed his work. At the end of four months a tumour appeared at the site of the wound, attended with heat, pain, and tenderness, and all the ordinary symptoms of abscess. There was also pulsation, a bruit, and most of the ordinary symptoms of aneurism. At the consultation there was a division of opinion, those deciding in favour of aneurism placing great stress upon the fact of previous injury and lesion of the artery. The subsequent history of the case proved the correctness of their opinion.

But cases may occur in which the secondary swelling after the repair of an injured artery has all the conditions of an abscess, and none of the symptoms of aneurism. In such a case the fact of a previous lesion of the artery is of the first importance in the diagnosis. If this feature of the case is overlooked, an error will be the result. The following interesting case was reported by Dr. J. B. Whitridge, U. S. A.:—

"W. T., æt. 19, soldier; a buckshot entered right groin; penetrated the inguinal glands; passed nearly in the direction of the femoral artery; lodged in the vastus externus muscle; bled profusely; was treated in the usual way; discharged cured; two months after, was seized suddenly with pain in the thigh; two days after, the whole thigh was much tumefied, from the groin to the knee, particularly at the part where the shot entered; no pulsation, and the patient

said he felt none at any time ; considered the case as one of deep-seated abscess consequent on the wound ; after four or five days fluctuation became perceptible ; no pointing ; waited for integuments to become thin ; thigh again enlarged, but no pulsation could be detected, nor did the tumour recede on pressure ; thigh became of enormous size, and integuments distended as if about to rupture. Now made an incision into swelling ; removed one quart of black and fetid material, when there was a gush of arterial blood ; ligated external iliac artery ; death twenty-five days after operation ; disease proved to be a diffuse aneurism."

Deschamps pointed out another complication which not unfrequently occurs in practice, and of which not a few examples are on record. Inflammation may occur in the cellular tissue around an aneurism, and terminate in suppuration. The pus may accumulate in a well-defined abscess, or it may be diffused. In these cases the early history is that of aneurism, and if these symptoms continue well defined the abscess is liable to be overlooked. The error, however, is generally favourable to the proper and successful treatment of the case, for the aneurismal feature leads to the diagnosis of this disease, and the treatment adopted is favourable.

The early history of ruptured or diffuse aneurisms, which have lost their pulsation, is very liable to be overlooked, and the case treated as abscess. And yet when thoroughly and intelligently examined, patients always remember and will describe the essential, early feature, viz., pulsation. Guthrie very aptly describes (*Dis. and Inj. of Arteries*) a case which illustrates the experience of every practical surgeon :—

"The leg was double its natural size, the skin greatly distended, shining, and coloured, but not inflamed, and yielding an obscure feel of deep-seated fluctuation. The calf was evidently the part most distended, and the tumour extended into the popliteal space, but not as high as the origin of the heads of the gastrocnemius muscle. The artery could be felt above this when examined with care, but no pulsation could be distinguished in the tumour, not even by the stethoscope, so as to be in any degree satisfactory. It might be an enormous deep-seated abscess, it might be a fungoid tumour, it might be anything else. The history obviated all difficulty. The man knew he had a pulsating tumour, throbbing like his heart, which he had often felt at the upper part of the calf of his leg. He had suddenly felt great pain in the part, from which moment the limb began rapidly to increase in size."

4. *An aneurism may be formed from an abscess, in which case the early history and symptoms indicate abscess, and the later, aneurism.*

—There is a class of cases in which aneurism and abscess coexist. In some of the cases already given suppuration existed to a limited extent in the cellular tissue over the artery, and by its diffusion rendered the diagnosis more difficult. But there may be a well-defined abscess, with its cyst wall lying contiguous to an artery ; in the process of enlargement of the abscess the artery may be encroached upon, its walls gradually destroyed, and a rupture finally take place with an immediate distension of the cavity of the abscess with blood from the artery. The correct diagnosis of such a case at any stage would be extremely difficult, if not impossible. The symptoms of abscess and aneurism would be so inextricably mixed that a discrimination would be most perplexing. Mr. Liston's supposed error first

called the attention of surgeons to this class of cases. The following is a brief report of his case.

"G. A., æt. 9, six years ago suffered from severe illness, and was left in a very reduced state; two months ago had a violent cough, with considerable fever, when a small swelling was observed in the neck below the right ear, which was fomented and poulticed; it increased gradually until within four days of his admission to the hospital, when its progress became more rapid and its shape irregular; the tumour was at the angle of the jaw, on the right side, extending backwards as far as the posterior border of the sterno-mastoid, downwards to within an inch of the clavicle, and forwards to about half the length of the horizontal ramus of the lower jaw; projected into the mouth between the arches of the palate, impeding in a great degree deglutition and respiration. Its most prominent point was posteriorly and superiorly at the outer border of the sterno-mastoid. Indistinct fluctuation could be felt, and there was slight pulsation in it immediately over the carotid artery; but on grasping the sides of the tumour no pulsation could be discovered, nor could any be felt inside of the mouth. Mr. Liston, thinking that the tumour contained matter, made a puncture into it; a gush of arterial blood followed the operation, four ounces being lost in a few seconds; the wound was closed and the bleeding checked; the carotid was ligated. A week after the operation some grumous blood escaped from the opening in the tumour, and continued to ooze, for about six days, at the end of which time a gush of arterial blood took place from the wound; hemorrhage returned six times, the last one leaving him in a state of collapse, from which he never recovered. A large tumour was found, which contained a quantity of dark grumous blood, external to which, and lining the parietes of the cyst, was a layer of organized lymph. There was a direct communication between the carotid artery and the cavity of the abscess; the opening being on the posterior aspect of the vessel and exactly at the bifurcation of the common carotid trunk. It was three lines wide and two and a half long, its edges well defined and slightly everted. The external coat of the artery was distinctly traced, and afterwards dissected from the middle coat quite up to the margin of the opening, where it terminated abruptly, not being reflected on to the inner side of the tumour."—*On a Variety of False Aneurism*, pamphlet, London.

This case excited much interest at the time, and Mr. Liston was somewhat severely censured for what was deemed his rashness in opening a simple aneurism. His defence was that the appearances and symptoms of abscess were more prominent than those of aneurism, and hence justified the diagnosis and treatment of abscess. He also maintained that an abscess originally existed, which in time communicated with the artery by ulceration of its coats, and thus complicated, the case could not be made out without exploration. This plausible explanation of the error was received with so much incredulity that the operator's paper embodying the case, entitled "*On a Variety of False Aneurism*," was refused insertion in the *Transactions of the Medico-Chirurgical Society*. Although Mr. Liston's opinion of the nature of his case has generally been accepted as correct, yet the fact remains that he did not resort to auscultation. In the discussion which followed the reading of the paper, Bransby Cooper and others regarded the omission of auscultation as unimportant, and maintained that the error of diagnosis was unavoidable.

Mr. Liston supported his view of the case by citing several other similar cases. Of these Mr. Quain's case was an instance of an abscess com-

pletely severing the brachial artery, and requiring amputation of the limb. A case, at one time under the care of Mr. Syme, is also given of an abscess in the popliteal region, which was opened and the artery was felt pulsating in its proper position ; three weeks after hemorrhage took place, and the femoral artery had to be ligated. Mackenzie (*Edin. Monthly Journ. Med. Sci.* 1852, vol. xiv. p. 110) reported a case which he regarded as of the same variety as that of Mr. Liston :—

A tumour appeared below the right collar-bone, without pain or pulsation ; three weeks after it began to pulsate, attended by severe pain on the inner side of the arm and forearm ; the tumour was soft, partially disappeared on pressure, ceased to pulsate on compressing the artery above ; the subclavian artery was ligated, and death occurred from secondary hemorrhage. The tumour had a cavity partially intra-thoracic, which communicated with the axillary artery ; the opening in the artery "resembled in all respects the perforation of two arteries in my possession which had given way into the cavity of abscesses."

The history of the case led the operator to believe that the abscess had its origin some time previously between the walls of the thorax and costal pleura ; it then perforated the intercostal space, and appeared externally ; then burrowed in contact with the axillary vessels in the highest part of their course, and the artery thus laid bare in the cavity of the abscess had at length given way, probably only two or three days before he came under observation, the period when he first observed pulsation. The same criticism was made in this case as in Liston's ; also, "that the disease was simply abscess, and that the diagnosis of the case from first to last was erroneous." He refutes this opinion as follows :—

" But one well-marked symptom was present, which alone precludes the idea of the disease being a simple abscess. Pressure on the subclavian artery over the clavicle not only arrested the pulsation of the tumour, but it produced remarkable subsidence of the swelling, so much so, that Mr. Syme remarked, whilst compressing the subclavian artery alone with the finger, that the tumour was gone. This could not have occurred had the disease been a simple abscess. The tumour instantly refilled on removal of the pressure on the artery."

Cases of a similar character occasionally occur in connection with caries of the vertebræ. In these cases an abscess forms between the bodies of the vertebræ and the aorta, and the latter is finally opened by ulceration. The early symptoms all indicate caries of the vertebræ ; but suddenly an aneurism is developed, and the remaining history of the case is that of aneurism.

A case came under my observation of a man who complained of incessant pain in the back, lassitude, inability to stand in the erect position, pain around the abdomen and down the inside of the thighs ; careful examination detected only tenderness on percussion over the ninth and tenth dorsal vertebræ. He died suddenly, and, on examination, extensive caries, with exfoliation of the bodies of the ninth and tenth vertebræ, was found, and an ulcerated opening of the artery, with large effusion of blood. The walls of an abscess were well defined, and the calibre of the artery was perfectly preserved, except at the point where the ulceration occurred.

A similar case was reported by Dr. Dewes (*Lond. Journ. Med.*, vol. iv.

p. 35). In this case all the early symptoms were those of caries of the vertebræ, but an aneurism was suddenly developed, which was detected during life. An autopsy revealed an ulcerated opening into a cavity containing exfoliated bone, the calibre of the artery remaining perfect.

5. *An aneurism, having its history and characteristic symptoms for the most part well marked, may be mistaken for abscess.*—It not unfrequently happens that a tumour presents all of the ordinary symptoms of aneurism, together with a characteristic history, and yet there are slightly modifying circumstances connected with it indicative of abscess. In such cases a prudent surgeon may be led to give undue weight to the least essential symptoms, and commit an error in diagnosis which at first seems highly culpable. On the contrary, such cases, occurring in the practice of surgeons of well-known skill and capacity, demonstrate the uncertainties of the "various scientific tests" upon which we rely in the diagnosis of aneurism, even in the hands of the most trustworthy surgeons.

The following case is an illustration of the truth of this statement, and proves that surgeons of undoubted ability and of large experience have been mistaken in the diagnosis of an aneurism in which the "scientific tests" were all carefully applied, and in which the symptoms were for the most part positive. The case was reported by Dr. A. C. Post, of New York (*New York Journ. of Med. and Surg.*, 1840, vol. iii. p. 459).

Male, æt. twenty, blacksmith, accustomed to shoe horses, admitted to the New York Hospital August 15, 1840, with a tumour above the left groin. About ten months before admission had gonorrhœa, and eight months before admission had chancre on the penis; nine weeks before admission a small, circumscribed pulsating tumour appeared in the left iliac region without pain; was salivated for the tumour, and after a long, fatiguing walk, began to suffer much pain in that limb and in the tumour; attempted to work, but suffered from burning in the feet and cramps of the legs; tumour now began to increase in size, and became more painful; applied camphor poultice and finally leeches. On admission, the tumour was about four inches in diameter, flattened, and hard; pulsation was present, and a distinct bellows murmur was heard. At a consultation of the surgeons of the hospital, each surgeon came to the conclusion that there was not evidence to establish the aneurismal character of the tumour, and that it was impossible to form an accurate diagnosis of its nature. Anodyne and emollient poultices and leeches were applied. The tumour continuing to enlarge and cause severe pain, a lancet was introduced, and nothing escaping, an explorative incision was made, and the finger introduced into a cavity containing coagulated blood; the following night there was a gush of arterial blood from the wound. The subsequent treatment consisted in ligating the common iliac artery, and the patient died twenty-four hours after the operation.

No one can doubt that this case was examined by competent surgeons with great care, and yet the mistake was made of opening an aneurism as if it were an abscess. Dr. Post's comments on the case are very judicious, and worthy of consideration by every student of aneurisms.

"Pulsation," he says, "and the bellows sound were perceptible in the tumour, but these might have been explained by the presence of a tumour, not aneurismal, upon the external iliac artery. The tumour was remarkably flat, not presenting the rotundity which is usually found in aneurisms."

"Another remarkable fact, and one which added greatly to the difficulty of diagnosis, was the hardness of the tumour, and the impossibility of evacuating any part of its contents by pressure, at so early a period after the commencement of the disease.

"The very rapid growth of the tumour, and the unusual severity of the pain, which marked its progress; these circumstances, together with the cessation of the bellows sound, and of the pulsation, inclined me to the belief that the tumour was probably the result of an inflammatory engorgement beneath the iliac fascia."

The various questions considered in the preceding pages might be much more largely illustrated with cases, and other phases of the subject might also be presented. But they would only tend to confirm the conclusion to which every practical surgeon must arrive. It must be apparent that the diagnosis of aneurism from abscess is frequently a matter of extreme difficulty. When the symptoms are only in part present, or are of doubtful interpretation, the surgeon is compelled to proceed with extreme caution, and be prepared to encounter the emergencies which arise if his operation is based upon false premises. And even when all the symptoms are present and of a positive character, he may, after the most pains-taking examination, fall into an error fatal in its results.

The bearing which these facts have in the jurisprudence of medicine is important, and deserving of notice.

The alleged errors of medical men which have been made the subject of judicial investigations now extend to every branch of practice. No surgical disease or operation has escaped this scrutiny, nor have practical medicine, obstetrics, pharmacy, and dentistry been more favoured.<sup>1</sup> It rarely happens in these trials that the medical questions involved are explained by experts, and the confused and often prejudicial testimony of rival practitioners leaves the court and jury in a state of ignorance or of indecision as to the real merits of the case at issue.<sup>2</sup> A practitioner was recently arraigned in court, on the charge of manslaughter, for mistaking an aneurism for an abscess. After hearing a score of medical witnesses

<sup>1</sup> In a collection of reports of trials for alleged malpractice (now amounting to several thousand) made during the past twenty years, this fact is strikingly illustrated. Nearly every practical duty in surgery, medicine, obstetrics, dentistry, and pharmacy has been arraigned on the charge of malpractice.

<sup>2</sup> There is manifestly great need of a work which shall present the medical aspects of such cases with that weight of authority and completeness of illustration that the court, guided by its teachings, can act as an intelligent arbiter on all medical questions at issue. Chitty recognized this want, and intended to supply it in the future parts of his great work on *Medical Jurisprudence*. But he lived to complete only the first part. He says:—

"It is obviously the imperative duty of all persons who have to act as judges or judicially, to obtain such a knowledge of Anatomy, Physiology, Pathology, and Surgery, as to be able themselves accurately to appreciate the value of any evidence respecting injuries to the person, and so as not to be implicitly governed by the testimony of any medical witness."

equally divided between the prosecution and defence, the judge gave the following charge:—

"In this case the patient had a popliteal aneurism—a disease that all medical men testify is easily diagnosed, and cannot be mistaken by a man of the ordinary knowledge of his profession, and that it would be gross malpractice to attempt to treat it without subjecting it to the various scientific tests. It has been said by counsel for defence, that some of the most distinguished surgeons have made such mistakes; but these are rare and isolated cases—so rare and remarkable, that they have been recorded as lights to the profession, admonishing the surgeon to use greater care, and, instead of excusing, they go far to implicate the defendant; for if he has not read the books he is guilty, and therefore we think Dr. B. is responsible for the death of Mr. K. It is time the profession was awake and on the alert against such acts of malpractice, and it is time the public was defended against the dangers of such persons."

We do not propose to inquire into the merits of this individual case; it is quite probable that the defendant was an ignorant practitioner, and was guilty of gross malpractice, and hence deserving of the condemnation which he received at the hands of the judge; but we leave each one to estimate in the light of surgical experience the value of this judicial decision on questions of a purely professional character. A French jurist<sup>1</sup> has expressed in emphatic language an opinion which is confirmed by an examination of any considerable number of judicial decisions in trials for alleged malpractice:—

"They [the courts] are not competent judges either of theories, opinions, or systems. They cannot appreciate the character of an opportunity for, and the more or less perfect execution of, a surgical operation, nor the value of a special form of treatment, because they can never be converted into medical tribunals of ultimate appeal, apportioning the blame to the penalty, and pointing out the path which should be pursued."

The opinion above quoted embodies the following propositions:—

1. *Aneurism is a disease that all medical men testify is easily diagnosed, and cannot be mistaken by a man of the ordinary knowledge of his profession.*

As a general statement, without qualification, this proposition is not true, and exhibits a very limited acquaintance with the opinion of medical men. While all authorities testify to the ease with which a well-marked aneurism can be diagnosticated, the opinion is quite as emphatically given that under a great variety of circumstances errors are unavoidable.

2. *It would be gross malpractice to attempt to treat it [aneurism] without subjecting it to the various scientific tests.*

This proposition is correct and very forcibly stated.

3. *Mistakes by distinguished surgeons are rare and isolated cases—so rare and remarkable that they have been recorded as lights to the profession.* It is very evident from the preceding quotations that mistakes are neither rare nor isolated, even among distinguished surgeons. This fact

<sup>1</sup> *Ordonnaux, Jurisp. of Medicine.*

would be very much more apparent if all the errors of surgeons were published. It may safely be assumed that but comparatively few of the errors in diagnosis of aneurism are faithfully recorded. This may be inferred from the acknowledged difficulty of diagnosis in most of the complications of aneurism—complications which are by no means rare and isolated. Whoever has seen much of hospital practice is aware of numberless instances where consultants have been divided in opinion as to the nature of aneurisms, and where the question was finally settled by exploration, or some more serious operation.

4. *These cases, instead of excusing, go far to implicate the defendant, for if he has not read the books he is guilty.* The opinion here expressed seems to be that a practitioner who does not keep pace with the improvements in his profession, is, on that account, blameworthy when he commits errors. He is guilty if he is not familiar with the recorded "rare and isolated cases," when he errs in their management. The position assumed by the court is reasonable, and deserves the serious consideration of those surgeons who discard current medical literature.

It may, however, be questioned, if authorities have not treated the difficulties of diagnosis of aneurism too lightly for the purposes which their opinions serve in judicial inquiries. In the judicial decision which we have just quoted, the court did not overstate the positive character of the opinions expressed by surgical authorities as to the ease and certainty with which aneurisms could be diagnosed. Such a conclusion would inevitably follow the consultation of the most accessible works on surgery. Holmes (*Syst. of Surg.*) says: "The assemblage of these symptoms furnishes as decisive evidence of the nature of the disease as it is possible to have of anything not actually under our eyes." Billroth says (*Surg. Pathology*): "On careful examination such an error would scarcely be possible." Guthrie (*Lond. Med. Gaz.*, vol. ix.) had occasion to treat a case of punctured femoral aneurism, in which all the usual signs were present, by ligation of the external iliac artery. In his comments upon this case he is most decidedly of the opinion that such errors are the result not of ignorance but of inattention to the history and the symptoms of the individual case. He says:—

"This is the second case I have had of femoral aneurism sent into the hospital after it had been opened. I do not believe that in either case it occurred through ignorance, but from inattention; from the practitioner having made up his mind that they were abscesses, and then proceeding in their treatment as such without further consideration." He adds, emphatically, "It would have been impossible to mistake this last case, if the slightest examination had been made to ascertain if it was or was not an aneurism; for the pulsation was distinct, and the peculiar whizzing noise was clearly perceptible to the ear."

It is no reflection upon Mr. Guthrie's skill as a diagnostician to add that several years later he mistook, together with Astley Cooper, a pulsating malignant tumour for aneurism, and applied a ligature to the com-

mon iliac artery. In this last case the pulsation was present, and the "peculiar whizzing noise," and, relying implicitly upon their value, he committed the same error that he so strongly denounced in other surgeons.

Mr. Erichsen (*Lancet*, 1858) reported three cases of puncture of aneurism mistaken for abscess. In two of the cases expansive pulsation, a marked bruit, disappearance of the tumour on compression of the artery on the proximal side, etc., were present. The third was a diffused popliteal aneurism, the symptoms of which were not as distinct. In the first case (femoral aneurism) the external iliac was ligated with a fatal result; in the second, also a femoral aneurism, the tumour was laid open, and the artery tied above and below, with fatal result. In the third case amputation was performed. In commenting upon these cases Mr. Erichsen severely condemns the practitioners who were guilty of the errors. He says:—

"In a majority of cases of aneurism nothing is easier than to make the diagnosis. When an aneurism is thoroughly formed, is pulsating eccentrically, and has a distinct bruit; when the pulsation and bruit are arrested by compression of the artery leading to the tumour; when the size of the tumour diminishes; when the vessel leading to it is compressed; when the pulsation and bruit both return on the pressure being removed; when the tumour increases in size on the pressure being removed; when that increase in size is evidently eccentric, and the pulsation eccentric from the interior of the tumour—a dilatation as well as a pulsation—there can never be any serious difficulty in distinguishing an aneurism from everything else."

In the light of preceding cases it must be evident that in the expression of such decided opinions due importance is not attached to clinical experience. Theoretically there can be no doubt as to the ease with which a tumour having the ordinary symptoms of aneurism well marked can be diagnosticated. Apparently "these symptoms furnish decisive evidence of the nature of the disease;" it would seem that "an error would scarcely be possible;" in the strong language of Mr. Guthrie: "It would have been impossible to mistake this last case, if the slightest examination had been made to ascertain if it was or was not an aneurism." But when we remember that neither aneurism nor abscess has pathognomonic symptoms; that all the apparent conditions of aneurism may be present, even to expansive pulsation, and yet no aneurism exist; we must appreciate the difficulties which too frequently beset the surgeon in his treatment of aneurism. De Haen stated his conclusions as to the ease and certainty with which aneurisms are in general diagnosed, much more nearly in accordance with clinical experience: *Nullus fere morbus est in quo tum turpius, tum facilis decipiamur.*

ART. II.—*On the present state of the question of the Unity or Duality of Syphilis.* By FREEMAN J. BUMSTEAD, M.D., of New York.

"It is evidently far more difficult to defend the duality than the unity of two diseases, resembling each other. He who maintains the latter has only to point to forms apparently intermediate, as proof of identity; he who asserts the former, no matter what the weight of evidence in general may be, is called upon to analyze and explain every intermediate form and every exceptional case."—*Geigel.*

IT is just twenty years since Bassereau, who may justly be called the founder of the modern school of dualists,<sup>1</sup> put forth his views in his modest work entitled, "*Affections de la Peau, Symptomatiques de la Syphilis.*"

Those who have commenced the study of medicine only recently, can hardly appreciate how gladly the new doctrine, as it became known during the course of ten years, was received by many of the older members of the profession; what a relief it afforded from the confusion and contradictions, in which the subject of venereal had long been involved; how it cleared up many obscure cases met with in practice; how it consequently charmed by its simplicity; and to what extent it has been of great positive and lasting benefit to mankind by relieving patients from the unnecessary administration of drugs, powerful for evil when not requisite for good.

How after the lapse of these twenty years, does this doctrine now stand? Has it in every respect fulfilled the expectations raised on its first announcement? Has it stood the test both of clinical experience and of artificial experiment, or does it require to be modified or abandoned, regarded from a practical or a scientific standpoint, or from both?

It should be remarked at the outset, that the proof upon which Bassereau based his doctrine was of the simplest kind. It was, in fact, historical and clinical, but in no wise experimental proof that he adduced.

In the way of historical proof, he asserted, that, although contagious ulcers of the genital organs, communicated in sexual intercourse, were well known to the ancients, yet the constitutional disease which we call syphilis first made its appearance in the latter part of the fifteenth century, about the time of the well known Italian epidemic; that it was recognized as a new disease, distinct from any hitherto observed, by the physicians of that period; and that, in treatises upon venereal for many years afterwards, this and the former disease were described in separate and distinct chapters, showing that no idea was entertained at that time that the two were identical.

The discussion of this historical question would be tedious to most readers, and I shall therefore avoid it. The best recent works to consult

<sup>1</sup> It is hardly necessary to remark that there can be only one syphilis and consequently no duality, but that this term and some others in this article are used for convenience in their accepted sense.

upon the subject are Hirsch<sup>1</sup> and Haeser<sup>2</sup> in favour of the ancient origin of syphilis, and Geigel<sup>3</sup> against it; but no one should read either of the two former without reading also the latter, in order that he may see how frequently passages in ancient authors, which to the cursory reader imply a knowledge of the existence of a constitutional venereal disease, are not only susceptible of, but absolutely require a different interpretation, when compared with other passages of the same author, and with the medical ideas of the time in which they were written.

Upon one point there is and can be no dispute, viz., that syphilis, at the time of its appearance in Italy in the latter part of the fifteenth century, was regarded as new by the physicians of that time, and that this opinion continued to be held until the middle of the eighteenth century.

The quotations from ancient authors and from authors of the middle ages, which during the last hundred years have been adduced to prove an ancient origin for syphilis, are far from conclusive, and even those historians who write in favour of the same are only able to say they believe it to be probable.

The second proof adduced by Bassereau was clinical and was derived from what is known as the confrontation of persons affected with venereal diseases. In as many cases as possible, amounting to several hundreds, the disease in the recipient was compared with that in the giver. If a man had contracted a venereal ulcer from a certain woman, she also was examined, and *vice versa*; and, in numerous cases, the contagion could be tracked through several successive generations, or again to a number of individuals who had obtained it from a common source. Now as the result of this investigation, Bassereau found that when the disease was local in the giver it was also local in the recipient, and that when it was constitutional in the giver it was always constitutional in the recipient; in other words, that the broad lines of distinction separating a local disease on the one hand from a constitutional disease on the other, divided, as it were, two streams, which flowed on from one generation to another without intermingling or communicating. Hence he inferred that the disease hitherto known as syphilis was really made up of two diseases, the one local and the other constitutional; the former being the contagious ulcer of the genital organs, the latter true syphilis.

It should be noticed that Bassereau intentionally confined his observation to the local and constitutional character of the diseases referred to, and did not include any differences, real or supposed, in venereal ulcers themselves. His proof was not that a woman having either an ulcer with a soft or a hard base would always communicate one corresponding to her

<sup>1</sup> Hirsch. *Handbuch der historische—geographischen Pathologie*. 1860-4.

<sup>2</sup> Haeser. *Geschichte der epidemischen Krankheiten*, second edition, Jena, 1853 and 1865.

<sup>3</sup> Geigel. *Geschichte, Pathologie und Therapie der Syphilis*; Würzburg, 1867.

own ; it was that, according as it remained local or constitutional in her, so it would be in all who derived contagion from her and in all to whom they gave it, and so on indefinitely. In this way Bassereau avoided any great danger in diagnosis and did not rely, as many have done, on symptoms of minor importance, which, though generally constant, may yet in some cases be poorly marked or even wanting.

Has this clinical proof been refuted ? It may be asserted, without fear of contradiction, that it has not. Soon after the publication of Bassereau's work, Fournier and others reported other series of cases in confirmation of his statements, and no attempt has ever been made to disprove them. Moreover, I shall have occasion to show that even professed unitists of the present day admit that the local or constitutional character of venereal ulcers is "generally" perpetuated, and that duality is a safe and desirable doctrine to follow in practice.

But dualism, in the hands of others, was destined soon to be worked out in greater detail, and to be reduced to more of a system. In its elaborated form, as it was accepted ten years later (1862), its tenets were as follows :

1. Two totally distinct diseases are included under what was recently called syphilis ; the one a local contagious ulcer, the "soft chancre," or chanchroid ; the other a constitutional affection, true syphilis. Each disease is dependent upon a distinct virus, and arises only from its kind.

2. The only unfailing test of a chanchroid is its capability of being reproduced indefinitely upon the person bearing it by means of auto-inoculation. No other ulcer has this power.

3. The chanchroid makes its appearance, without incubation, in the course of forty-eight hours after inoculation. Its base is usually soft, its edges sharply cut, and its secretion purulent. Its secretion may be absorbed by the lymphatics, and be conveyed to the nearest ganglion, in which case it will give rise to a virulent bubo, the pus of which is identical with that of the chanchroid itself.

4. True syphilis commences (aside from hereditary taint) with a chancre, which makes its appearance at the point of inoculation, after a period of incubation, averaging about three weeks. The chancre itself is an indication that infection of the system has already taken place.

5. A chancre appears as an exulceration or an ulcer ; its secretion is usually serous, and in the course of a few days, its base or edges, or both, usually become indurated.

6. The secretion of a chancre cannot be inoculated upon the person bearing it or upon any person under the influence of syphilitic infection, but it will communicate a chancre and syphilis to any person who has never before been infected.

7. The nearest ganglion, in anatomical connection with a chancre, almost invariably, and the intervening lymphatics not unfrequently, become indurated at the same time as the chancre itself. If suppuration takes

place, either in the ganglia or lymphatics, it is due to accidental causes, giving rise to common inflammation, and the pus is simple pus, destitute of specific quality.

8. The general symptoms of syphilis appear after a second period of incubation, averaging (from the appearance of the chancre) about six weeks.

9. General symptoms follow the same rule as regards communicability as the chancre, *i. e.*, they cannot be inoculated upon the person bearing them, or upon any person under the influence of syphilis, but they are communicable to sound persons.

Such were the tenets of dualism, as it was widely accepted ten years ago in France, England, and America. In Germany, also, dualism was received with favour, and numbered among its adherents the late von Baerensprung, Zeissl, and Reder, followed by Sigmund and others. The only difference in the views of the German school consisted in this: relying upon the phenomena exhibited by syphilis when produced by artificial inoculation, and when its evolution could be carefully watched from step to step, they asserted that the first manifestatation of the disease was not an erosion nor an ulcer, but an *induration* at the point of inoculation,<sup>1</sup> which subsequently might or might not become ulcerated; they therefore abandoned the name of chancre as applied to the earliest effect of syphilitic inoculation, and used it only to indicate the "contagious ulcer of the genital organs," the "soft chancre" or chancroid. This difference, however, in the views of the German school, has no bearing upon the doctrine of dualism itself, and we come now to other and more important points.

As already stated, one of the fundamental points of dualism was, that syphilis, like all other infectious diseases, could not be reproduced upon persons already under its influence, and hence, that neither a chancre nor any of the general lesions of the disease was auto-inoculable. Exceptions, however, in rare instances, were soon discovered to this rule, and it was found that a few chancres, some four or five out of a hundred, could readily be inoculated upon the persons bearing them. The result of such successful inoculation was, indeed, not a reproduction of the chancre in its recognized form, but the production, apparently, of a chancroid, since a pustule without incubation was produced, which was capable of further inoculation upon the same person.

A ready explanation of this phenomenon was supposed to be found in the "mixed chancre," as was advocated especially by Rollet, of Lyons.

<sup>1</sup> As shown by Auspitz (Die Lehren vom Syph. Contag., 1866), this supposition was not wholly correct. An examination of known cases of syphilitic inoculation upon sound persons shows, that the earliest perceptible effect at the point inoculated is a macule, and a thickening of the tissues in form of a papule. Decided hardness or induration, either with or without erosion or ulceration, is a subsequent process.

It was said that a person might be exposed, *in coitu*, to the action of both the chancroidal and syphilitic virus, and be inoculated at one and the same point by both. The first result would be the development, in the course of a few days, of a chancroid, but after the usual period of incubation, a chancre would be evolved at the same point. The sore would then be "mixed," and possess the properties both of the chancroid and the chancre. In virtue of the former, it would be inoculable upon the person bearing it, and, in virtue of its double character, it would communicate both a chancroid and syphilis to a sound person. Again, instead of the two contagions taking place in the same, each might take place in a distinct act of coitus; if the same point were inoculated in both, a mixed chancre would equally be the final result.

The existence of a mixed chancre was not only highly probable in itself, but was shown to be possible by Rollet and others in the following manner: patients were selected, who were affected with true chancres, the secretion of which had been found to be ineffective when auto-inoculated; the pus from a chancroid was then applied to the surface of the chancres, and after a few days, during which the aspect of the sores became changed, the secretion was again inoculated upon the bearers with success.

Fournier met with a case in Ricord's wards, in which the double inoculation took place in two acts of exposure by the patient.<sup>1</sup>

The recognition of a "mixed chancre" met with a large amount of opposition and even ridicule from unitists, but yet for a time it was regarded by dualists as a satisfactory explanation of all cases in which a chancre could be successfully auto-inoculated. Such, however, was not the case.

The advocates of syphilization in Norway had, in the early period of their practice, contented themselves with using the virus of chancroids in their repeated inoculations of persons affected with syphilis, but the news now came that they were having recourse in preference to the secretion of true chancres and even of syphilitic condylomata, and had come to employ this virus exclusively. But little credit was attached to this report until after Prof. Bœck's visit to England and to America. In England, Prof. Bœck succeeded in some seven cases, and in my wards at Blackwell's Island, after a number of failures, he met with success in one instance. His method was to inoculate every day, and in some cases twice a day, and he stated that success would be finally attained, though possibly not until after the lapse of several weeks.

I have omitted, however, to give due credit to Mr. Henry Lee, of London, who as early as 1856, and before the practice of the Norwegian surgeons, had called attention to the fact that a chancre would become readily auto-inoculable, if it was irritated in such a manner as to render its secretion decidedly purulent. This fact was confirmed by Bidenkap,

<sup>1</sup> See Bumstead on Venereal, 3d ed. p. 375.

Köbner, and Pick, in Germany, who not only applied powdered savine to the surface of chancres in order to irritate them, as Lee had done, but also accomplished the same purpose by passing a seton of horse-hair through the base of the sore. Similar treatment of syphilitic condylomata had the same effect and rendered their secretion inoculable, though with greater difficulty.

From these experiments and those of other observers, the following conclusions may now be regarded as well established :—

1. Neither the initial lesion of syphilis (chancre) nor any of its secondary manifestations can readily be inoculated with success upon the persons bearing them, nor upon any other persons under the influence of syphilitic infections.

2. Successful auto-inoculation, however, of these lesions may be attained by irritating them, by the methods just mentioned, so that their secretion is rendered decidedly purulent.

3. The effect of the successful inoculations is apparently the same as that produced by the inoculation of chancroidal matter. In the course of about forty-eight hours, or without incubation, a pustule appears, which covers an ulcer with abrupt edges, a soft base, and a tendency to spread, and which will reproduce itself on artificial inoculation through a number of generations. Only three cases have been reported by Bidenkap, as exceptions to this course. In one an indurated ulcer is said to have been developed after the lapse of two to four weeks: in the other two, papular elevations, without induration, and becoming only superficially ulcerated, followed after a lapse of four and three weeks respectively, at the same time that pustules appeared from later inoculations made a few days before with the same matter and upon the same patients. These exceptional cases are explained by Bidenkap on the supposition that the system was not fully saturated previously with the syphilitic virus.

It having thus been proved that, under certain circumstances, not only the initial lesion of syphilis, but also one at least of its general lesions, was capable of auto-inoculation and that the result was apparently identical with that obtained by inoculation of chancroidal matter, an important question still remained to be decided, viz., what the effect would be in case the secretion from these successful auto-inoculations of syphilitic matter upon syphilitic subjects were inoculated upon sound persons, persons free from syphilitic taint. It was believed and asserted by the dualistic school, that the virus would invariably retain its characteristic properties, and that the effect could only be the production of a chancre followed by the general symptoms of syphilis. This anticipation, if we may judge from the limited number of cases in our possession, was erroneous.

The following case is reported by Bidenkap, of Christiania :—<sup>1</sup>

<sup>1</sup> S. Bidenkap, om det syphilitiske Virus, Christiania, 1863; also Wiener mediz. Wochenschrift, 1865, Nr. 34.

Oline Martinsdatter, seventeen years old, entered the hospital Oct 9, 1862, with gonorrhœa of the vagina and urethra. She had recently come from the country and had never before suffered from any venereal disease. Her health was otherwise perfect. She was treated with alum-tampons in the vagina and a solution of nitrate of silver in the urethra.

On the 25th of November, she inoculated herself on the epigastric region by means of a needle. The matter was taken from the artificial ulcers of a patient who was being treated by syphilization; and these ulcers had been produced, many generations back, by the author's inoculation of matter from an infective chancre. She concealed for a week what she had done; but as the inoculation had succeeded only too well, she was compelled to show it. On examination there was found a round ulcer of the size of a pea, with sharp edges, sunken floor and surrounded by a reddish swelling. The secretion of the ulcer was copious and there was no trace of induration.

She stated that a pustule had appeared a few days after the inoculation, and had terminated in the ulcer. The latter was treated with a water-dressing. It soon increased decidedly in size, and the inflammatory swelling became greater, but without becoming perceptibly indurated. By the end of three weeks, it had attained a diameter of rather more than four lines; it was tolerably deep, with callous edges, and its secretion had become scanty and thinner. It was now lightly touched with stick nitrate of silver.

December 28, a swollen gland of the size of a walnut, somewhat painful on pressure, appeared in the left axilla, but disappeared again in three weeks.

January 27, 1863, the ulcer had decreased to the size of a pin. There was not the slightest sign of infection of the system. In consequence of spontaneous inoculation, a small ulcer now formed by the side of the old one, but soon healed.

March 5, the patient was dismissed. The ulcers had healed and had left behind them bluish, somewhat elevated scars, which were not indurated. There was no swelling of the glands and no symptoms of syphilis.

The patient was subsequently examined nearly every week by the author, who could not discover the slightest trace of constitutional disease.

In the summer of 1864, however, she contracted a chancre, which was followed in a few months by roseola and other constitutional symptoms.

A second case reported by Bidenkap does not differ materially from the preceding.

The patient, a girl free from syphilitic antecedents, had entered the hospital for eczema. She inoculated herself with matter taken, as in the first instance, from patients undergoing treatment by syphilization, who had been successfully inoculated several generations back with the secretion of their own chancres. As a result of these inoculations, pustules and ulcers appeared without incubation, and several of them finally left "hardish" scars. Some symptoms of a suspicious character afterwards appeared on other parts of the body, but were not regarded as syphilitic by the attending physicians.

In the third edition of my treatise upon venereal, p. 47, I have also reported three similar cases, communicated to me by Dr. Gjör, of Christiania. The matter was originally derived from the successful auto-inoculation of mucous patches and was being used in syphilization. Three girls, free from syphilitic taint, inoculated themselves from the ulcers of the patients undergoing this treatment and acquired pustules, which were not preceded by incubation, and which were not followed by any general symptoms of syphilis.

It would not be strange if the secretion from *any* sore upon a syphilitic subject, when transferred to a sound person, should occasion a chancre and syphilis, since blood might readily be mixed with the secretion; but

the five cases now referred to, although imperfectly reported and open to criticism, appear to prove that the contrary is *possible*, and that the inoculation of syphilitic matter upon a syphilitic subject may actually give rise to a sore, which is proved to be a chancroid by its preserving its local character when transferred to a sound person. But before coming to any conclusion, it is necessary to mention other and still more extraordinary experiments.

In 1865, Prof. Pick, at that time an assistant of Hebra's, tried the effect of inoculating simple, non-venereal matter, upon syphilitic subjects : Taking the matter from pemphigus, acne, scabies, and lupus, occurring in persons who had never had syphilis, he first inoculated it upon the individuals from whom it was taken, and, as one would anticipate, without effect ; but this same matter inoculated upon syphilitic subjects, gave rise in three instances, to pustules not preceded by incubation, and the secretion of which was further inoculated through many generations. Similar experiments by Reder and Kraus proved successful in one instance.<sup>1</sup>

Mr. Morgan, of Dublin, has also within a few years succeeded, as he states, in producing pustules, capable of further inoculation through a number of generations, by inoculating syphilitic women with their vaginal secretion. The field selected by Mr. Morgan was an unfortunate one for the reliability of his experiments, but it is not improbable that pus from the vagina should act like the simple matter in Prof. Pick's experiments.

It appears then that the inoculation of simple, non-specific matter upon syphilitic subjects will produce the same effect as inoculations with the specific virus of syphilis ; and, if this be so, the conclusion is inevitable that, in the latter case, the effect can in no wise be attributed to the specific character of the matter employed.

Again, when the opponents of dualism assert that they have proved its falsity by showing that the syphilitic virus may be reduced to, or transferred into, the chancroidal virus, may it not be replied with some degree of justice : you have proved too much ; you assert that the syphilitic and chancroidal virus are the same, because under certain circumstances they will produce the same effect ; but simple matter will also under the same circumstances produce this effect ; *ergo*, syphilitic matter and chancroidal matter and simple matter are, all three, one and the same thing. This would be unitism sufficient to satisfy any one !

It may be well before going further to inquire what the effect has been of the experiments now reported upon the belief of medical authorities as regards dualism.

Pick's experiments can here hardly be taken into the account, since too short a time has as yet elapsed and they have become too little known to attract the attention they deserve. With regard to the experiments of Mr. Henry Lee and others, showing that the lesions of syphilis may be

<sup>1</sup> See Auspitz, op. cit., p. 335.

inoculated with success upon the bearer and that they will produce a lesion apparently identical with the chancreoid, the case is otherwise. Of course one effect has been to strengthen the advocates of unitism in their opinion. It must also be confessed that the effect upon some dualists, especially German, has been to lead them to doubt—from a scientific, though not from a practical standpoint—the absolute distinction of the chancreoid and syphilis.

I have had little opportunity the last few years to learn through personal conversation or otherwise the opinions of French dualists; I have reason to believe, however, that they still adhere to their belief, and I would specially mention the names of Ricord and Fournier, who may be called the setting and the rising suns of French syphiliography.

Among the Germans, Sigmund gave in his adhesion to dualism about the time that it had come to attract general attention, viz., in 1862.<sup>1</sup>

In a conversation I had with him last spring (1872), he said to me: "I cannot believe otherwise than in a distinction between chancreoid and syphilis. They must be two diseases."

Among German authors of comprehensive works upon venereal, the best known are Zeissl,<sup>2</sup> Reder,<sup>3</sup> Michaelis,<sup>4</sup> and Geigel.<sup>5</sup> The first two of these, in their first editions, advocated dualism to the fullest extent, and Zeissl, in his second edition just published, still expresses himself (p. 8) as follows:—

"The undeniable fact that, as a rule, an indurated chancre is infallibly followed by syphilis whilst the same cannot be said of the non-indurated chancre, leads us to believe up to the present day, in the essential difference between the virus of the non-indurated contagious ulcer and that of syphilis."

Again, p. 177, he says:—

"No experiment has ever been made which would show that, out of a number of inoculations made at the same time with the same virus upon one or more individuals, a part of these would contract indurated and the others soft ulcers. In the inoculations undertaken for the purpose of syphilization with the virus of soft chancres, non-indurated chancres always appeared, whilst in nearly every case, in which sound persons have been properly inoculated with the secretion of an indurated chancre or a syphilitic papule, an indurated ulcer has been the result. These facts lead us to claim a different virus for the non-indurated and the indurated venereal ulcer."

Reder, in his second edition, has, from a scientific standpoint, abandoned dualism, and believes that the chancreoid and syphilis are dependent upon the same virus, but he says that it is better for practical purposes to

<sup>1</sup> See the "Wiener Med. Wochenschrift," 1862, Nos. 23, 25, 51.

<sup>2</sup> Lehrbuch der const. Syphilis, Erlangen, 1864. A second edition has just appeared, 1871-2.

<sup>3</sup> Pathologie und Therapie der vener. Krankheiten, Wien, 1863. A second edition was published in 1868.

<sup>4</sup> Compendium der Lehre von der Syphilis, etc. Wien, 1859. Second edition appeared in 1865.

<sup>5</sup> Op. cit.

regard them as distinct, and he describes each in a separate portion of his work. Michaelis has always been a unitist.

Geigel's work, in which duality finds a warm advocate and defender, is remarkable for the thorough and able manner in which the history of syphilis is discussed and its modern origin maintained.

Auspitz, whose work is a valuable compilation of the facts and experiments as yet published bearing upon venereal contagion, interpreted, however in a most partisan spirit in favor of unity, confesses (p. 349):—

“ If we limit ourselves to the circumstance of a chancre being followed by general symptoms, there is in fact no question, that a chancre which produced general symptoms on its bearer, will also, when inoculated upon other persons, usually produce the same; and *vice versa.*”

In a conversation I had this year with Prof. Pick, of Prague, the co-editor with Auspitz of the German *Archiv für Dermatologie und Syphilis*, he was unwilling to commit himself either in favor of unity or duality and thought that the question required further investigation.

Last, but by no means least, we will mention Prof. Hebra, whose researches in dermatology, allied to, but far from identical with, the specialty of venereal, command universal respect.<sup>1</sup> Hebra has always been, and is still a unitist. He believes that the chancroid and syphilis are dependent upon the same virus, and as Clere did, that the two forms bear much the same relation to each other that vaccine does to smallpox. Why, if this analogy be correct, a chancroid should not afford protection against syphilis, as vaccination does against variola, does not clearly appear.

As is well known, the difference in the effect of venereal contagion—the production of a local sore in one case and that of a constitutional disease in another—was formerly explained by unitists on the ground of a difference in the idiosyncracy of the recipients of the virus. This idea having been exploded by Bassereau and his followers, unitists of the present day are driven to other explanations of the phenomena referred to.

According to Auspitz, “ syphilitic contagion exercises either an *acute* or a *chronic* action;” the result of the former is the local ulcer (chancroid), that of the latter a constitutional disease (syphilis).

Others, as Michaelis, explain the difference of action by a difference in the concentration of the virus:—

“ The pus of the soft chancre is the concentrated virus, which exercises an acute action, and, in consequence of rapid destruction of the tissues, prevents infection of the general organism. The latter takes place much more readily after inoculation with a weak virus. An analogy for this supposition is found

<sup>1</sup> It is a noteworthy fact, that, in spite of dermatology and syphilology being generally united in medical journals, and in the practice of specialists, those who have distinguished themselves in the former have rarely, if ever, been eminent in the latter. This is well exemplified in French medical literature. The explanation of the fact is, on reflection, not difficult, since the dermatologist is chiefly occupied with the sequelæ of syphilitic infection and is not in a good position to study its early forms, or their connection.

in the action of other corrosive poisons. Thus, by means of arsenical paste, an eschar can be produced, without the arsenic being absorbed; whilst the prolonged application of a weak arsenical solution will produce arsenical poisoning of the system."

These explanations are mere hypotheses unsupported by proof. Why is it, that the acute action on the one hand, and the chronic action on the other, is perpetrated in one generation after another, unless the two forms are entitled to be considered as distinct diseases? Or what is that remarkable point or degree of concentration of the virus, beyond which a chancroid is produced, and short of which, syphilis? Why is this point not constantly transgressed by the weakening or strengthening of the virus, and proved to be so by the confrontation of patients? Or, granting, for the sake of argument, that it has been transgressed in one direction by the transformation of the syphilitic into the chancroid virus in experimental inoculations, what evidence has ever been adduced to show that the chancroidal can be transformed into the syphilitic virus?

But it is time to return to the question with which we set out: "How to-day, after the lapse of twenty years, stands the doctrine of duality?"

We would reply:—

1. *Practically*, as well as it ever stood, or was supposed to stand. The proof upon which it was based by Bassereau has never been successfully attacked. No further historical researches have been able to show that syphilis existed prior to the latter part of the fifteenth century, ages after gonorrhœa and a contagious local ulcer of the genitals were recognized and described by numerous authors. Above all, the evidence afforded by the confrontation of patients has never been confuted. In the whole classification of diseases, we rely upon certain characteristics, uniformly present in successive generations as distinctive signs; what characteristics could be more marked or more distinctive than a local character on the one hand, and a constitutional character on the other? Even the most violent opponents of duality admit "in general," that these characteristics are constant.

2. From a *scientific* standpoint, it is not improbable that some of the tenets of dualism, as adopted by the followers of Bassereau, will have to be modified; it is even possible that the *absolute* distinction of the chancroid and syphilis may be disproved. It would be useless to deny that the results of the recent experiments given above, were unexpected by the dualistic school and cannot be explained by them in accordance with the views which they have held. Taking these results as they at present stand, it must be confessed that they point to some connection between the chancroid and syphilis, which we do not as yet fully understand. But, on that account, to throw dualism at once aside, with the weight of practical evidence in its favour, would be a hasty and uncalled for step, since unitists as well as dualists are equally unable to explain these results, especially those of Prof. Pick, in a full and satisfactory manner.

The fact is, that a new field for investigation and experiment has been opened, which no one as yet has fully explored, and no one can pretend to understand. The exploration of this field promises to throw light not only upon syphilis, but upon other contagious diseases, and even to add to our knowledge of the nature of specific poisons in general; but the work is yet undone, and any conclusions at this time are only premature.

3. The "unity," towards which it has been said that we are "drifting," is not the unity that we have left and abandoned. That was a *practical* unity, if I may be allowed the expression, which regarded one venereal sore as well as another as the possible precursor of constitutional infection, and which called upon the surgeon to burn out every chancre and to give the patient mercury to the verge of salivation, and to leave him in suspense for months and years before he could be assured that the treatment (?) had succeeded. *And the teachings of that unity were carried out in practice.*

The possible unity of the future may show that the chancroid and syphilis are not absolutely distinct, and that they are remotely dependent upon a common virus. Should this be established, it would be a fact of great scientific interest; it might lead to the discovery of some preventive against the scourge of syphilis, and in this way be of incalculable benefit; but, otherwise, it will affect the daily practice of the surgeon as little as the physician is influenced in his treatment of a case of variola by the knowledge that vaccinia is due to the same poison. There will still be two forms of one disease, which will be as distinct for all practical purposes as if they were radically distinct diseases, and patients afflicted with venereal ulcers will still have reason to bless the name of Bassereau and the dualism which he established.

HEIDELBERG, Nov. 1872.

P. S. Paris, Feb. 1873. Since my arrival in Paris I find the doctrine of "duality" is as strong here as ever. Ricord said to me the other day, *Mons., c'est un véritable*. Fournier also is equally decided. French physicians and surgeons, however, have little, if any, knowledge of the investigations and experiments which have been made in other countries, especially in Germany.

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ART. III.—*Contribution to our Knowledge of the Physiological Action of Atropia.* By H. C. Wood, Jr., M.D., Clinical Lecturer on Diseases of the Nervous System in the University of Pennsylvania.

SOME years since I began an original study of the physiological action of belladonna, but the ground has since been so thoroughly gone over by others, as to render my task unnecessary. It seems proper, however, to put

on record my unpublished experiments and clinical material, and they are therefore here offered as especially of corroborative value.

The first portion consists of experiments made on dogs as to the action of atropia on the circulation. Without going into a thorough discussion of the subject I remark:—

In Expt. No. 1, slight rise of arterial pressure and increase of the rapidity of the pulse, followed the injection of  $\frac{1}{12}$ th grain of atropia, in a dog whose pneumogastrics had been previously cut; in No. 2, there was decided rise of arterial pressure and pulse frequency after the injection of a grain of atropia in an old dog similarly mutilated; No. 3 agreed with the last as far as the arterial pressure was concerned, the pulse not having been noted; in No. 4, very slight rise of the pulse and decided increase of the arterial pressure occurred under similar circumstances; in No. 5 section of the par vagi in an atropized dog was followed by rise of arterial pressure, the cardiac portions of the nerves being insensible to the faradaic currents; in No. 6, section of the par vagi in an atropized dog was followed by no rise in pulse frequency, but an increase of arterial pressure.

The increase in the pulse rate, which atropia in several of these cases produced after division of the pneumogastrics, would seem to indicate that the alkaloid possesses a stimulant power upon either the accelerator nerves of the heart, or more probably their centres, and that the enormous increase of the number of the pulse beats per minute seen in the atropia poisoning, is not entirely due, as has been believed, to paralysis of the peripheral vagi, but also to a direct accelerating action upon the antagonists of the latter.

Bezold and Bloebaum have found that after section of the par vagi and spinal cord, artificial respiration being maintained, atropia fails to increase arterial pressure. Experiments 7, 8, 9 substantially confirm this, as any slight rise of arterial pressure that occurred can be accounted for by the increased frequency of the heart's action due to paralysis of the vagi, which in my experiments were not cut.

*Expt. 1.*—A moderate sized cur dog. At 3.40 P.M. the pneumogastrics were cut.

Time.	Pulse.	Arterial pressure.	Remarks.
4.05	190	90 to 115, mostly from 100 to 110	Dog quiet. One-twelfth grain injected into peritoneal cavity.
4.20	210	105 to 125, mostly from 110 to 120	One-twenty-fourth grain injected into peritoneal cavity. Mouth very dry.
4.30	.....	.....	One-sixteenth grain injected into peritoneal cavity.
4.45	.....	95 to 110, going to 120 during struggles, and rarely down to 85	
4.55	.....	As before	
4.58	.....	.....	Injected thirty minimis of <i>fluid extract of aconite leaves</i> into peritoneal cavity.
5.13	194	As before	
5.23	152	65 to 75, going to 80 on violent struggles	Dog killed.

Expt. 2.—A very strong old terrier. Cut the par vagi at 9.30. A.M.

Time.	Pulse.	Arterial pressure.	Remarks.
3.50	201	Mostly 110 to 120, going up to 130 at times—rarely down to 90	Injected grain j. into the peritoneal cavity. Pipe in femoral artery.
4	224	125 to 135, going up to 145, rarely down 120	The pupils were widely dilated three minutes after injection. Dog quiet.
4.15	220	175 to 190,* 130 to 120**	Dog quiet.* Dog struggling violently.**
4.23	224	120 to 130	Injected grain j. Dog perfectly quiet.
4.30	224	105 to 115	Dog quiet.
4.31	.....	90 to 120	Very violent struggles.
4.39	.....	100 to 135	Struggles continue.
4.50	200	125 to 135	Dog quiet. Injected gr. j. into cellular tissue. Efforts being made at vomiting. Breathing exceedingly hurried.
5	.....	125 to 130	Dog was let up, and was able to walk. He was killed.
5.10	.....	120 to 135. The single heart beat scarcely perceptible	

Expt. 3.—A youngish, moderate sized cur. Cut the pneumogastrics at 3 P.M.

Time.	Pulse.	Arterial pressure.	Remarks.
3.26	.....	140 to 145, rarely 135. Heart stroke 2 to 3	Injected one-third grain into left jugular. Tube in carotid.
3.39	.....	115 to 160, falling 20 to 30 with each inspiration	Inspirations exceedingly deep and laboured. Dog struggling violently.
3.44	.....	160 to 195, mostly 170 to 185. H. S. 8	Dog quiet.
3.58	.....	140 to 145. H. S. 5.	
4	.....	130 to 135, at times between respirations going to 150. H. S. 4	Respirations four a minute.
4.6	.....	130 to 185, mostly above 150	Respirations twelve to fifteen a minute. Dog struggling some.
4.19	.....	Mostly 170 to 185, going at times to 195, and on the forced respiration sometimes momentarily to 160	Respirations three a minute, very deep and quick. Arterial blood very dark.
4.25	.....	125 to 135. H. S. 5	
4.27	.....	.....	Respirations more frequent. Injected one-third grain into peritoneal cavity.
4.34	.....	105 to 110	Respirations continuous.
4.40	.....	120 to 130	Dog quiet.
4.41	.....	110 to 150	Dog struggling.
4.50	.....	110 to 195, mostly 150—following respiration closely—going over 85 with a single one. H. S. 3	
5	.....	85 to 150. H. S. 2 to 3	Dog let up; the hind legs completely paralyzed; the front nearly so.

Expt. 4.—A youngish Scotch terrier. Cut the par vagum at 10 A.M.

Time.	Pulse.	Arterial pressure.	Remarks.
3.20	200	130 to 150. H. S. 1 to 3	One-third grain injected into peritoneal cavity. Tube in femoral artery.
3.25	210	.....	
3.30	.....	.....	One-third grain injected.
3.39	198	.....	
3.53	.....	130 to 160, rarely to 165 and to 130. H. S. 1 to 3	
4	210	.....	An accident put an end to the experiment.

Expt. 5.—A young dog. Exposed par vagum. 3.36 injected two grains into peritoneal cavity.

Time.	Pulse.	Arterial pressure.	Remarks.
3.55	.....	130 to 150	Cut the pneumogastrics; very laboured efforts at respiration came on at once. Tube in carotid.
3.56	.....	140 to 180 following respiration	
3.58	.....	140 to 150	Respiration more quiet.
3.60	.....	155 to 165	A very strong faradaic current was now applied to the distal end of the cut nerves. No apparent influence on the heart, but very marked effect on the breathing, and under the effort the mercury would rise to 170.
4.5	.....	150 to 160	A faradaic current shows no influence on heart.
4.10	.....	.....	Passed for two minutes a very strong current through distal end of nerves without exciting any action on heart.
4.20	.....	120 to 135	Let dog up; he could barely walk in a sprawling manner.

Expt. 6.—A young hound.

Time.	Pulse.	Arterial pressure.	Remarks.
4.20	118	130 to 140	Tube in femoral artery. Injected one-sixteenth grain into peritoneal cavity.
4.27	156	135 to 170	
4.29	154	120 to 160	Dog struggling.
4.40	.....	.....	Cut the pneumogastrics; the usual disturbance of respiration.
4.41	154	.....	
4.50	154	135 to 144	
4.59	.....	.....	Injected one-sixteenth grain into peritoneal cavity.
5.3	180	.....	
5.20	.....	155 to 165	Breathing very laboured and noisy. Injected one-sixth grain.
5.35	180	Mostly 145 to 150, going up rarely to 175, and rarely down to 145	

Expt. 7.—A rather small terrier cur. Cut the spinal cord between sixth and seventh vertebræ at 3.12 P.M.

Time.	Pulse.	Arterial pressure.	Remarks.
3.30	.....	50 to 55, going at times to 45 and to 60	Respiration regular. Dog quiet. Tube in carotid.
3.38	.....	As before	Pupils decidedly contracted.
3.40	.....	.....	Injected one-half grain into peritoneal cavity.
3.51	.....	50 to 57	Pupils fully dilated; otherwise dog as before.
4	.....	50 to 57	Injected one-half grain into peritoneal cavity.
4.12	.....	53 to 57, going at times to 45 and to 60	
4.18	.....	.....	Injected one-half grain into peritoneal cavity.
4.25	.....	53 to 56, down at times to 40	Breathing very slow. Dog now killed.

Expt. 8.—A stout dog.

Time.	Pulse.	Arterial pressure.	Remarks.
2.30	.....	180 to 225	
3.20	.....	.....	Cut cord between fifth and sixth vertebræ.
3.40	132	45 to 60	Injected one-half gr. into peritoneal cavity.
3.50	156	60 to 65, rarely to 70	
4	.....	50 to 60, rarely 65	Injected two-thirds gr. into peritoneal cavity.
4.10	170	35 to 45, rarely 50	
4.20	.....	.....	Injected one and one-third grain.
4.46	.....	45 to 60, rarely to 65	
5	.....	75 to 95, rarely to 65 and to 100	
5.5	.....	.....	Injected one and a half grain.
5.15	.....	75 to 85, rarely to 90	Individual heart beats are certainly stronger than before the injection.
5.45	128	75 to 85, rarely from 65 to 95	
6.6	112	As before	An accident put an end to the experiment.

Expt. 9.—A young spaniel.

Time.	Pulse.	Arterial pressure.	Remarks.
3	.....	130 to 150, mostly above 140	Tube in carotid artery.
3.30	.....	.....	Cut cord between fifth and sixth vertebræ. Pupils were much contracted.
4	.....	75 to 80. H. S. 4	
4.7	.....	.....	Injected one and a half grain into peritoneal cavity.
4.22	128	70 to 75, rarely to 65 and to 78. H. S. 4.	Pupils widely dilated.
4.33	136	60 to 75	Breathing, as all along, slow, regular, and deep.
4.45	.....	.....	Injected two grains.
4.55	.....	60 to 70, rarely up to 73	
5.22	120	60 to 70. H. S. 6	
5.45	.....	55 to 65	Blood coagulated in the artery.

I shall devote the remainder of this paper to the consideration of the asserted antagonism of morphia and atropia. I do not care here to enter fully upon this subject, but will simply state that the *medical value* of atropia in opium poisoning is to my mind a *completely established* fact. The remedial value of alcohol in cases of failure of the circulation after overdoses of opium every one probably will acknowledge. Yet no one would call the two drugs *antagonistic*. The relations of atropia and opium are probably very similar. The latter kills very generally by its influence on the respiratory centres, and it is a proven fact that in large doses atropia is a most powerful, and, as far as I know, the only known, direct stimulant to the respiratory centres, and when it has been used in opium poisoning it has been very commonly noted that improvement in the respiration is the first or among the first results. Even in fatal cases like that reported by Dr. S. W. Gross, in the number of this Journal for October, 1869, the antagonistic action of the drugs upon the respiratory centres is very evident, although life was not saved. Further, in this connection it must be borne in mind that very probably the excess of carbonic acid in the blood in opium narcosis is often an important factor in the production of the stupor.

There is here added the record of a number of cases in which large doses of atropia and morphia were given alone and in combination hypodermically, by Drs. J. E. Spencer, T. D. Davis, and Emory Eshleman, (*internes*), at Philadelphia Hospital, under my supervision.

CASE 1.—I gave Mrs. R—, aged about 35 years, a hypodermic injection at 9 P. M., for a severe facial neuralgia. Fourteen drops of a solution of morphia (1 gr. to fʒj) were thrown into the substance of the deltoid muscle. No bleeding followed, but almost instantly the pain ceased, and in about five minutes the patient fell back into the bed, apparently insensible, with her jaws relaxed and falling, and the face pallid. After some little shaking she roused up and conversed rationally, complaining of feeling heavy, and of tingling in extremities. The pupils were contracted, but not to a very great degree. At 10 P. M. the pulse was 112, regular, quick, excited but weak; the respirations irregular, 15 or 20 per minute; the skin relaxed; the muscles in like condition; at times there was some rigidity of masseters, which was not permanent, however. The patient remained semi-unconscious but was readily aroused, and breathed regularly and deeply, so long as constantly told to do it, there being no difficulty in forced inspiration. She complained of queer sensations in the head, as well as of numbness, tingling, and dead feeling in the limbs. Turpentine, fʒvj, by injection did not move her bowels. Coffee was given and constant rousing, and forced voluntary respiration enjoined. Vomiting appeared first about 11 P. M. At 11½ P. M. the pupils were about the same, *i. e.*, decidedly but not extremely contracted; mobile within very narrow limits. The respiration 18, regular, rather shallow; the pulse 104, not very strong. She was easily aroused, and would carry on a conversation. Under stimulus of active conversation she roused up, laughing and talking brightly, and her pulse came down to 90 and became moderately strong, very regular; her breathing was at this time 18 a minute,

regular. Whenever, however, the conversation ceased for a minute she would fall to sleep immediately, and the respirations would become very irregular, falling to 10 or 12 a minute, with occasional paroxysms of very rapid breathing; during the stupor the pulse would grow more frequent and weaker. She had several spells of vomiting. Brandy and coffee were given freely, but she probably threw up most of them.

At 1 A. M. a very severe spell of vomiting was followed by almost immediate unconsciousness, from which the patient was with difficulty aroused. The pupils did not vary any; the pulse ran up to 112; the respiration became very irregular and shallow.

At  $1\frac{1}{2}$  the pulse was 150, and it was necessary constantly to keep shaking the patient and forcing her to make voluntary respirations. The pupils were not movable; the skin and extremities warm. I gave atropiae sulph. gr.  $\frac{1}{80}$  hypodermically. It dilated the pupils somewhat, but not up to the natural size; yet the respirations became evidently deeper and more regular. The pulse was not perceptibly affected, it remaining 150, very weak and small, almost thready.

We kept shaking her constantly. The brandy and coffee and ammonia were mostly thrown up by the vomiting which occurred; finally, however, raw brandy in  $\frac{1}{3}$ ss doses seemed to be absorbed and was given at short intervals.

By 2 A. M. the respirations had become irregular again, and pupils gone back to the original contraction. The pulse very weak, 156; the patient very heavy, but could be roused readily by loud talking. It now became necessary to constantly hollow at her to make her breathe, for when left to itself the respiration became very irregular and entirely insufficient. An injection of gr.  $\frac{1}{80}$  atropiae sulph. was followed by some slight dilatation of the pupil and improvement in respiration, but no change of intellect, and in about half an hour all the symptoms returned with increased intensity. The skin remained warm, but the pulse became exceedingly weak. The patient was never, however, in a dead stupor, but could always be roused by shaking and even by loud speaking, when she would do as commanded, but if left alone fell into an alarming state. At  $2\frac{1}{2}$  gave gr.  $\frac{1}{80}$  atrop. sulph. with transient effects as before. At 3 A. M. gave gr.  $\frac{1}{60}$ . The pupils soon dilated very decidedly to more than normal size; the respirations became easy and regular, and about normal in frequency. By  $3\frac{1}{2}$  A. M. the face and neck were a deep bright scarlet, and there was double vision from paralysis of accommodation. It was no longer necessary to keep constantly arousing the patient, who talked somewhat incoherently. The pulse was 150, but full, strong, quick, almost angry. The spells of vomiting still occurred at intervals without affecting the pulse. From this time the patient gradually got better, all the symptoms subsiding regularly.

CASE 2.—Mr. James White was called at 10 A. M. to see a young woman about 19 years of age, who, from jealousy, had endeavoured to destroy herself by taking two fluidounces of tincture of opium. Three hours had elapsed since the ingestion of the poison. He roused her with some difficulty; gave an emetic of mustard, which, proving ineffective, was followed by sulphate of zinc and titillation of the fauces; copious emesis resulted. An infusion of tannin was then administered, and followed shortly by 30 drops of the tincture of belladonna, which latter dose was repeated in fifteen minutes. The stupor still increasing, the same dose was

again given after the same interval. At this stage the patient swallowed with difficulty, but was at length compelled to drink a cup of strong tea and brandy. The stupor rapidly increasing, a teaspoonful of tincture of belladonna was administered, and turpentine injections were given. Electricity, sinapisms to epigastrium and extremities, and flagellation were also all used.

Five hours had now elapsed since the poison was taken. Although the characteristic effects of the belladonna on the pupil were becoming manifest, yet thirty drops more of the tincture were given, as her condition, although improved, immediately retrograded on any suspension of active treatment.

After this the belladonna was repeated in 30 drop doses at half hour intervals, until the pupils were widely dilated; no other belladonna symptoms were elicited.

At 5 o'clock her condition had so much improved that she was considered out of danger. At 7 and 9 improvement still continued. She ultimately recovered.

Dr. James E. Garretson has favoured me with notes of the following case:—

CASE 3.—A young man took by mistake six grains of the acetate of morphia and three grains of opium, when retiring to bed for the night. At five o'clock the next morning he was seen by Dr. Garretson, who found the man in a state of profound coma, from which he could not be aroused. Without pursuing any other treatment whatever, Dr. Garretson gave in divided doses within half an hour two and a half teaspoonfuls of the officinal tincture of belladonna. In one hour the patient was semi-conscious; in four hours completely so. He made a good recovery.

For the following two cases I am indebted to Dr. M. D. Knight:—

CASE 4.—A man aged forty-five years, intemperate, drank with suicidal intent six fluidrachms of laudanum, U. S. P. About an hour afterwards Dr. Knight found him narcotized and failed to induce vomiting by means of large doses of ipecacuanha, sulphate of zinc, etc. No stomach pump was at hand. An hour and a half after the ingestion of the poison the symptoms of narcotism were complete, and the respirations had fallen to from six to eight per minute. About viij grains of the extract of belladonna rubbed up in some water were given in divided doses by the stomach during the next four hours. During this period respirations were only kept up by the use of cold douche, etc. At the end of the time the pupils began to dilate and the respirations became more natural, also there were signs of returning consciousness. He now vomited freely, and after this recovered rapidly.

CASE 5.—Mr. —, aged thirty-three years, took for severe pain a  $\text{f} \frac{1}{2}$  ss of Tinctura opii, obtained at a country store and of unknown strength. He was seen by Dr. Knight an hour afterwards, and as he was still suffering he received at once, hypodermically,  $\frac{1}{4}$  grain of morphia, which dose was repeated in ten minutes. Almost at once the patient dropped into a sound sleep, and some hours afterwards the doctor was recalled. The pupils at this time were firmly contracted; the pulse very weak, 150 per minute; the respiration almost suspended, so that it was necessary to constantly dash cold water on his face, or to shake him violently to keep him breathing. It was almost impossible to arouse him at all. One grain of the extract of belladonna was ordered every twenty minutes, and two grains were injected at once into the calf of the leg, and in the next three hours he received between six and eight grains of belladonna extract. At the end of this time the pupils began to dilate, the respirations to become more frequent and regular, and it became more easy to arouse the patient, who henceforth convalesced without further treatment. There was no emesis at any time.

In the following cases the alkaloids were given hypodermically.

CASE 6.—Man, aged about 35, completely convalescent from relapsing fever, except in suffering from very severe neuralgic pains.

Date.	Dose.	Pulse and respiration.	Remarks.
8.15 12 M.	$\frac{1}{2}$ gr. mor. 1-50 gr.atr.	Pulse 88, half an hour afterwards 114.	The man went to bed, but slept very little. Some hours afterwards his eyes were very red, his throat very dry, and he was very dizzy. After supper there was severe vomiting, and the next morning he was very drowsy.
8.16	$\frac{1}{2}$ gr. mor. 1-50 gr.atr.	.....	Went to bed; did not sleep any; dizzy, with very red eyes, dry throat and mouth, and slight flush of face during the afternoon. Severe vomiting after supper.
8.17 11.30 A.M.	$\frac{1}{2}$ gr. mor.	11.30 A.M., pulse 78, resp. 20; 1.15 P.M., pulse 88, resp. 16	At 1.15 dizzy and sleepy. Slept an hour very heavily; also went to sleep at supper, and did not awake till morning.
8.19 2.15 P.M.	$\frac{1}{2}$ gr. mor. 1-40 gr.atr.	2.15 P.M., pulse 78, resp. 22; 3.30 P.M. pulse 100, resp. 24; 8 P.M. pulse 80, resp. 22	Very drowsy, and slept a great deal during the afternoon; no flush. Vomited at 5 P.M. At 8 P.M. pupils natural.
8.22	$\frac{1}{2}$ gr. mor.	12 noon, pulse 72 resp. 20; 3 P.M. pulse 76, resp. 18	At 3 P.M. pupils not markedly contracted. He was more drowsy, and slept more than the day before.
8.23	$\frac{1}{2}$ gr. mor. 1-40 gr.atr.	11.30 A.M. pulse 82, resp. 24; 2.30 P.M. pulse 86, resp. 18; 5 P.M. pulse 120	Went to sleep, and slept for an hour after the first injection. After the second injection, slept until tea time. At 5 P.M. his face was very much flushed, and his mouth and throat dry. After tea he vomited. Slept heavily all night.
8.24 12 M.	$\frac{3}{4}$ gr. mor.	12 M. pulse 104, resp. 23; 2 P.M. pulse 80, resp. 22; 5 P.M. pulse 84, resp. 23	Slept only a single hour during the afternoon, although very drowsy.
8.26 8.29	$\frac{3}{4}$ gr. mor. 1-30 gr.atr. 1 fluidi- drachm distilled water	.....	Slept well about an hour. He thinks he was not quite so drowsy as day before. Exceedingly drowsy; slept heavily all afternoon; waked with difficulty. He states that he was greatly relieved of his pain.
8.30 12 M.	6-7 gr.mor.	12 noon, pulse 100, resp. 20; 3 P.M. pulse 96, resp. 20; 7.30 P.M. pulse 92, resp. 20	Slept about two hours; not asleep at 3 P.M. Says he was not so drowsy and heavy as day before.
6.31	2 fluidi- drachms water	.....	Slept two hours. Says he was very drowsy and sleepy.
9.1	30 gtt. Magen- die's sol.	.....	Affected more than at any time before. Sleeping, with occasional wakings eighteen hours.
9.5	gr. j. mor.	.....	Slept an hour and a half. Moderately drowsy and sleepy all evening.
9.6	gr. j. mor. 1-30 gr.atr.	.....	Slept about as day before, but not so drowsy afterwards as day before.
9.9	$\frac{1}{2}$ gr. mor. 1-30 gr.atr.	.....	Face a little flushed. Slept about the same as the day before.

## CASE 7.—Man, aged 47.

Date.	Dose.	Pulse and respiration.	Remarks.
8.13	½ gr. mor.	12 noon, pulse 72;	
12 M.		1 P.M. pulse 70	
8.15	½ gr. mor. 1-50 gr. atr	12 noon, pulse 64; 2 P.M. pulse 86	Slept, but not heavily, and with waking intervals, until the next morning. He felt heavy and sleepy all afternoon and evening, but could not sleep, except for 2 hours, and was wakeful at night. The next day he was stupid, not sleepy.
8.23	⅔ gr. mor. at 11.30 A.M. At 2.30 P.M. 1-40 gr. atr.	11.30, pulse 70, resp. 23; 2.30 P.M. pulse 80, resp. 16	Half an hour after receiving the injection he went to sleep, and slept until 2.30 P.M., when he was awaked; at this time his pupils were "pin holes." After the atropia he went to sleep again, and slept heavily until 5 P.M. After this he did not sleep until 10 P.M., and was wakeful through the night. No vomiting on the day of injection or the next day.
8.24	⅔ gr. mor. 12 M.	12 noon, pulse 72, resp. 20; 2 P.M. pulse 68, resp. 18; 5 P.M. pulse 84; resp. 23	He slept heavily all afternoon, and the pupils were very much contracted until 5 P.M.
8.27	⅔ gr. mor. 1-40 gr atr.	.....	He slept very little during the afternoon, although somewhat drowsy, and none at all in the evening until bedtime. He had a severe chill in the afternoon, which was not followed by distinct fever. The mouth and throat were dry, and the face a little flushed.
6.28	1 fluid. drachm distilled water.	.....	It had no effect.

## CASE 8.—Adult man.

Date.	Dose.	Pulse and respiration.	Remarks.
9.19	gr. j. mor.	2 P.M. pulse 77, resp. 15; 4 P. M. pulse 76, resp. 14	At 4 P.M. he had not slept, although he felt very sleepy and very dizzy; his pupils were slightly contracted. At 7 P.M. he had nausea, and had been all afternoon very sleepy and drowsy, having slept, however, only half an hour. His pupils were contracted.
9.21	gr. j. mor. 12 M.	12 noon, pulse 76, resp. 12; 2 P.M. pulse 76, resp. 13	At 2 he was sound asleep, but awoke readily. He had been asleep only half an hour, and slept no more during the afternoon. He was even more sleepy than the day before, but not nearly so dizzy. Pupils natural.

CASE 9.—Adult man, supposed to be suffering from commencing locomotor ataxia.

Date.	Dose.	Pulse and respiration.	Remarks.
9.6 12 M.	gr. j. mor.	12 noon, temp. 99°, pulse 72, resp. 25; 1.30 P.M. temp. 97°, pulse 60, resp. 17; 6 P.M. temp. 97°, pulse 60, resp. 20	He went to sleep directly after receiving injection, and slept an hour and twenty minutes. Was drowsy all afternoon and evening. No vomiting.
9.8 12 M.	gr. j. mor. 1-40 gr. atr.	12 noon, temp. 99°, pulse 70, resp. 20; 2 P.M. temp. 97°, pulse 70, resp. 20	He went to sleep at once, and slept a little over two hours; did not feel sleepy again until after supper. Mouth dry; face flushed; felt burning heat through body.
9.9 11.30 P.M.	1-40 gr. atr.	11.30 P.M. temp. 98°, pulse 56, resp. 24; temp. 98°, pulse 68, resp. 22	He went asleep and slept three hours. The face at 2 P.M. was a good deal flushed, but not more so than the day before. Mouth very dry. Trembling, with disordered vision and diplopia.

CASE 10.—Adult man, with pneumonic phthisis.

Date.	Dose.	Pulse and respiration.	Remarks.
9.15 12 M.	gr. j. mor.	12 noon, pulse 72, resp. 24; 2 P.M. pulse 67, resp. 16	At 2 he had slept ever since the injection, an unnatural dreamy sleep, with phantasms. Slept until 4 P.M.; did not go asleep after this until 1.30 A.M.
9.16 12 M.	gr. j. mor. 1-50 gr. atr.	12 noon, pulse 60, resp. 22; 2 P.M. pulse 72, resp. 20; 7 P.M. pulse 60, resp. 20	At 2 P.M. had not slept any; vision good; pupils natural; slight thirst; face not flushed, although it had been; tongue moist; slept two hours after this.
9.19	$\frac{1}{2}$ gr. mor.	2 P.M. pulse 80, resp. 31; 4 P.M. pulse 48 full, resp. 23	By voluntary effort kept himself awake through the afternoon and evening. Pupils were much contracted all afternoon and evening. Marked dizziness. He vomited his supper.
9.20 12 M.	$\frac{1}{2}$ gr. mor. 1-40 gr. atr.	12 noon, pulse 68, resp. 26; 2 P.M. pulse 86, resp. 22	As yesterday, except that the pupils were dilated rather than contracted, and the dizziness was not so marked; also he did not vomit.

ART. IV.—*Method of Using Strychnia in the Treatment of Optic Nerve Atrophy and Allied Nervous Affections.* By JULIAN J. CHISOLM, M.D., Clinical Professor of Eye and Ear Diseases in the University of Maryland, and Surgeon in Charge of the Baltimore Eye and Ear Institute.

It is now nearly two years since I commenced experiments hypodermically with strychnia, for the relief of dimness of vision, in cases of optic nerve atrophy. With the usual timidity of one dealing knowingly with a

substance of great potency, I deemed it prudent to commence the series of experiments with doses so small as to be incapable of serious injury to even those whose system may show an idiosyncrasy, a rebellious spirit, against strychnia. Of a solution of the sulphate of strychnia 4 grs. of the salt and distilled water  $\frac{3}{5}$  j, 3 minims, containing the  $\frac{1}{40}$  of a grain, was the amount first introduced under the skin. It was presumed that strychnia would act as did morphia, with which the system seems most readily impressed by the hypodermic administration. In using a solution of the strength indicated it was an easy and safe method of watching the effects of increasing doses, as they could be added to drop by drop, and the increase suspended as soon as any toxic effects should show themselves.

Experience with observation soon showed that the human system rapidly tolerates strychnia, and that a dose which would cause decidedly uncomfortable contraction in the spinal and leg muscles, would after a few repetitions cease to annoy. Through this tolerance it was discovered that in every case the dose could be safely increased to a point far beyond the customary amount administered by general practitioners; even in the cases in which very small doses had in the beginning produced very uncomfortable symptoms. It was also observed that the ordinarily administered dose of from  $\frac{1}{80}$  to  $\frac{1}{50}$  of a grain of the sulphate of strychnia, which would at first be felt by the patient, when repeated three times a day, was comparatively useless, giving but negative effects in nerve atrophy, on account of the smallness of the dose. This small quantity causes no appreciable stimulation.

My experience led me to the conclusion that to obtain all the good that strychnia could produce, it was necessary to keep the system under the full physiological effects of the remedy by administering a dose as large as the patient could bear comfortably, and that a smaller dose would not answer. I also observed that when the tolerance of the remedy was fairly established very few patients could take more than one-half of a grain of the sulphate of strychnia daily, but that this quantity could be well borne by most persons. Under these doses there seemed to be a constant excitation sustained to the permanent benefit of the patient.

When it was found that strychnia could be introduced under the skin in doses so much larger than those ordinarily administered, an effort was made to create an impression that similar doses could not be taken into the stomach with the same impunity, and that strychnia differed from all other remedies hypodermically used. These, as we well know, are more active when hypodermically used, and consequently must be more guardedly given by the skin injection.

To test this important point I alternated with the same patient, dose with dose, giving at one time hypodermically, and at another by the mouth, a similar quantity from the same bottle. I found that the same quantity when injected would act a little more promptly than when ad-

ministered by the mouth, but that, except the difference in time, a few minutes only, there was no other appreciable difference in the effects. I, however, discovered that a similar dose was not equally borne at all times of day. A larger dose could be taken after eating than after fasting; in the one case, the medicine commingling with the food, absorption must be slow and gradual; whilst the whole amount dissolved in a little water, when brought in contact with the walls of the empty stomach, would be much more rapidly taken up. I also observed that the dose in the morning may be larger than that at mid-day, and this again than the dose of the evening; that is to say, that when the system tolerates one-fifth of a grain of the sulphate of strychnia after breakfast, followed by very little, if any, stiffening of the limbs, the same dose when repeated after dinner will be followed by a great deal more bracing of the muscles, and when repeated after tea for the third time during the day, it is very apt to bring on a very uncomfortable tetanic condition, which may last for one or two hours.

An explanation for these phenomena is sought for in the cumulative effects of the drug. It enters the system with much greater rapidity than it can be gotten rid of, its elimination being slow. When one-fifth of a grain of the sulphate of strychnia is taken after breakfast, the blood soon becomes charged with the salt, and in from twenty to sixty minutes the whole dose seems to have been taken into the circulation, affecting the nerve centres with the greatest force. The eliminating organs commence at once their work of straining it out of the circulation, and in a couple of hours, provided the dose be not toxic, a certain amount of the remedy is gotten rid of, which so far reduces the dose as to remove the disagreeable effects, but a quantity of the drug still remains in the blood, and the process of elimination is still to go on. When the after-dinner dose is taken, there is still some of the previous dose not yet eliminated from the circulation. To this the dose rapidly absorbed is soon added, making in this way a larger dose than the one believed to have been administered, and with therefore increased effects. Now, when the third dose is taken after supper, the cumulative effects of this entire dose, with possibly one-half of the dinner portion still in the circulation, impresses the nerve centres to such a decided extent as to produce the very distressing, although transient, spasms of the back and leg muscles. By morning again, fully twelve hours having elapsed, the eliminating organs, incessantly at work, have had time to expel from the system the entire amount received into the circulation on the preceding day. Therefore the large dose is again well borne at breakfast time, the evening dose repeating the discomfiture of the preceding day.

Finding by a very large experience that large doses of strychnia are required to effect beneficially the system in cases of deficiency in nerve action, and that a large dose when taken by the mouth will produce the

identical, immediate, and final results, as when taken under the skin, I have abandoned the hypodermic use of the remedy, inasmuch as the sticking with the small canulated trocar was not a pleasant anticipation, and would become from day to day more annoying, especially when kept up for months.

The intense bitterness of the strychnia which remains in the mouth for a long time after it is taken, can be avoided by giving the remedy in pill form, especially in sugar-coated granules. These I have frequently tested by comparing their effects with a liquid solution of the salt, accurately measured in a minim glass. I find them strikingly similar.

When strychnia is given in large doses in solution, it is not safe to trust to the teaspoon measure as used in different households. Many teaspoons will hold nearly two drachms, instead of the one drachm in which the proper dose of the remedy has been dissolved. Very dangerous effects might ensue when the physician is prescribing one-fifth of a grain of strychnia to the drachm, and the patient has administered to him over one-third of a grain to the teaspoonful. Hence I find the sugar-coated granules of fixed proportions a much safer means of administration. Again, if a patient with defective vision has to measure his own dose of this strong solution, there will be much less responsibility in trusting him to count pills than to measure a teaspoonful of a liquid preparation.

I have, for some months, restricted the administration of strychnia to the use of sugar-coated strychnia granules, as carefully prepared by Bullock & Crenshaw, or by Warner & Co., and others. I use granules of  $\frac{1}{30}$ ,  $\frac{1}{20}$ ,  $\frac{1}{15}$ ,  $\frac{1}{10}$  of a grain of strychnia each. With these combinations I can with every caution gradually increase the dose from day to day. I usually commence with a  $\frac{1}{30}$  of a grain granule, to be given three times a day, after meals. I commence with this small dose to guard against idiosyncrasies. If no discomfort follows upon their administration, after a few days the strength of the dose is increased by substituting a pill of  $\frac{1}{20}$  of a grain each. When these are well borne, granules of  $\frac{1}{15}$  of a grain are prescribed; and in a short period, often in from ten to fifteen days, granules of  $\frac{1}{10}$  of a grain of strychnia can be safely taken. The next increase made is to give two granules of  $\frac{1}{15}$  grain each, which will be equivalent to  $\frac{1}{7\frac{1}{2}}$  of a grain; and, finally, two granules of  $\frac{1}{10}$  of a grain each, can be administered as a dose. When these heavy doses are being used, I find it expedient to make the night dose light. For instance, when two of the  $\frac{1}{15}$  or  $\frac{1}{10}$  granules can be taken after breakfast, and even after dinner, with comfort, the patient avoids the annoying effects of an overcharged circulation with strychnia, by taking only one pill at bedtime. By this arrangement he takes the  $\frac{1}{2}$  grain of strychnia per day, which, according to my experience, is the dose that produces the best remedial effects. When these large doses have secured a tolerance in the system, they may be safely con-

tinued for months, or as long as they seem to benefit, and may be still further increased should they cease to excite the nerve centres. Whatever good accrues during the administration of the strychnia will be permanently retained. In no instance, as far as my experience extends, have I found the improvement lost when the use of the strychnia is discontinued.

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ART. V.—*On the Treatment of various forms of Amblyopia and Amaurosis.* By CHARLES S. BULL, M.D., Assistant Surgeon to the Manhattan Eye and Ear Hospital, Pathologist to the Presbyterian Hospital; New York.

LONG before the invention of the ophthalmoscope, and when ophthalmologists knew nothing of the pathological changes in the fundus of the living eye, strychnia had been employed empirically in the treatment of certain forms of amaurosis which were regarded as actual paralyses of the retina or optic nerve, but the reports of these cases have been transmitted to us in such an inexact and incomplete condition, that we can place no reliance on the correctness of the observations. Nagel, in his recent work (*Die Behandlung der Amaurosen und Amblyopieen mit Strychnin*, Tübingen, 1871), has given a very complete historical account of the employment of the drug, and says that Magendie attributes the honour of having first used it to Edwards, who employed the alkaloid in 1821 in a case of amaurosis with paralysis of the upper eyelid. Nagel thinks that the merit of having first instituted a series of successful experiments is due to Thomas Shortt, of Edinburgh. Shortt's observations were very careful and exact, though he was rather working in the dark, as far as means of diagnosis were concerned. He employed strychnia externally by covering the raw surface of an opened blister with the powdered drug, and claims to have seen very marked improvement in the cases thus treated. Shortt thought that the strychnia acted solely as an irritant, either upon the nerves themselves or upon their capillaries, and could therefore only be employed successfully in those cases of amaurosis which depended upon paralysis of the optic nerve or retina, or in cases of congestive amaurosis, where pressure is caused by the distended capillaries of the neurilemma. In cases, however, of structural changes in those tissues, in long-continued inflammatory action or atrophy of the medullary portion of the nerve, there was nothing to be expected from the use of the drug. How true these remarks are will be seen later on. Other observers, not satisfied with the effects produced by the dry powder, employed an ointment of such strength as to admit of applications of from gr.  $\frac{1}{5}$  to gr.  $\frac{1}{2}$  twice a day. The most successful results from this method were obtained by Miguel and

Cunier. (Nagel, *loc. cit.*, p. 9.) Henderson did not place much confidence in the strychnia as employed, as the method was a troublesome one to patients, who generally did not present themselves early enough in the course of the disease, and he recommended strychnia collyria. Pétrequin published a number of favourable results from strychnia, but his observations are so inexact and his ideas so crude that no reliance can be placed upon them. According to Nagel, German medical literature contains but little mention of the treatment of amaurosis by strychnia. Although the practice had its defenders, still there were many who opposed it as useless and irrational, and prominent among the latter class were von Ammon and Ruete. The remedy gradually became forgotten, and more recent works on ophthalmology do not even mention its name.

After the invention of the ophthalmoscope, our means of diagnosis were brought to a state approximating perfection. The distinctions between amblyopia and amaurosis were made more exact, and once more strychnia was brought before the profession; but this time its application was in a new form, that of hypodermic injections. Nagel tells us that von Graefe obtained no very favourable results from its use, and that the first successful employment of the drug in this form was by Frémineau, in 1863, who reports a case of amaurosis following typhus fever cured by five injections, and since then cases of recovery have been reported by Saemann, Höring, Talko, and others. There was also a case of binocular amaurosis following epilepsy, reported by E. G. Foster, in the *Boston Medical and Surgical Journal* for August 12, 1869, in which an ointment of the sulphate of strychnia was rubbed over the forehead, and vision was restored.

The influence of strychnia upon the sense of sight has been but little investigated, and in fact the only point that we are sure of, is that it produces a distinct irritation or excitement of the nervous portion of the visual apparatus. The sensibility to light is very much increased when the effect of strychnia upon the system has been produced, and there results a spasmotic contraction of the orbicular muscle. The pupils are sometimes contracted, sometimes dilated. In some cases there occurred first a contraction, followed by a dilatation. The action of the drug appears very soon after its injection beneath the skin, and Nagel says that even when given by the stomach, its effect can be seen in less than fifteen minutes. This, however, I have not myself observed. In a number of cases where I administered the drug hypodermically, the patients within five minutes affirmed that their vision was improved, and this assertion was verified by an examination. One very interesting point mentioned by Nagel is the antagonistic relation existing between strychnia and hydrate of chloral, which was first noticed by Oscar Liebreich; and Nagel says that he himself has had several opportunities of making use of this valuable property of chloral. Gillespie claims that bromide of potassium may also be used

as an antidote to strychnia. It is scarcely necessary to say that by giving the drug in small and very gradually increased doses, and by observing very closely and carefully the effects produced, there will never be any need of applying an antidote.

As regards the mode of application of the drug it may not be amiss to say a few words. In former years it was the common practice to employ the alkaloid endermically. A small portion of integument was removed, either by a blister or the knife, and the raw surface covered by the powdered alkaloid; but this method was found to have great disadvantages. It was admitted to be no easy matter to maintain an absorbing surface for any length of time, and the powdered drug was so irritating as sometimes to cause very troublesome affections of the skin.

Administration by the mouth is a very convenient method, but the effect is somewhat tardy in making its appearance, and also depends a great deal upon the condition of the stomach, whether it be full or empty.

The hypodermic injection is by far the preferable method, if only for the single reason, that it is always done by the physician and is never intrusted to the patient. The pain is very trifling, and I have never seen a case of any local irritation produced by the injection. The point where the needle of the syringe was introduced sometimes remains visible for some days, but there is no irritation or pain connected with it. Nagel seems to prefer the region of the temple for injecting, and thinks he has observed that the effect was more quickly manifested after an injection here than elsewhere. I see no reason for expecting such a result, and though I have injected several parts of the body, usually give the preference to the forearm, as being most convenient. The first effect produced seems to be generally a slight pain at the point of injection as the fluid spreads in the subcutaneous cellular tissue, followed occasionally in a few minutes by a sense of fulness and pain in the head with vertigo. In some few cases there was a perceptible improvement in the vision within the first fifteen minutes, and in one case of a man, the vision rose in five minutes from an ability to count fingers at six feet to  $\frac{20}{200}$ . Where larger doses have been administered, or in persons who seem to be peculiarly susceptible to the influence of the drug, I have occasionally seen slight muscular contractions of some of the superficial muscles of the body, especially about the face and neck, but never to any dangerous degree. In most of the cases, however, no unpleasant symptoms were ever observed, and even the slighter head symptoms were rare. Nagel says that he generally observed the improvement in the vision after the first very small doses, and as he observed no good effects very often after increasing the dose, he did this very rarely. In this I do not agree with him, for although I generally observed the best results from the frequently repeated small doses, yet I have met with cases in which, after a series of small doses, the improvement remained at a stand-still, and I was obliged to increase the dose

before any further improvement in the vision was shown. In other words, the patients had become accustomed to the strychnia, a condition frequently met with in the administration of other drugs, and the dose had to be increased if further improvement in the vision were desired. I have also seen cases in which small doses produced no effect upon the vision, and larger doses had to be administered from the start. I have never administered more than one injection in a day, and in about half the cases have only injected the patients on alternate days. I have never seen any of the cumulative effects which Nagel lays so much stress upon. It has not been my general experience that the improvement in the vision almost always occurs within the first hour after the injection or even sooner, for although in some few cases an improvement was observed within fifteen or twenty minutes, yet many of them seemed to show some obstinacy in coming under the influence of the drug, and in a few of them it was only after several days that any improvement was manifested. Hence I do not think it advisable to discontinue the injections after a few days if no improvement is shown, but make it a rule to give the drug a fair trial of a month, and then abandon it if no good result is obtained.

As regards the form of preparation to be used, I have uniformly had the best results from the use of the nitrate of strychnia, though I have also employed the sulphate and acetate. The sulphate I found somewhat unreliable, owing to its frequent adulteration, and the acetate I have not yet employed long enough to give a decided opinion as to its merits. Following Nagel's advice, it is better to commence usually with  $\frac{1}{40}$  of a grain, and continue this dose for several days, watching carefully the action of the drug before increasing the dose. The most convenient formula is to dissolve two grains of the nitrate of strychnia in an ounce of water, with the addition of a very few drops of acid, and then inject five minims of the solution, which gives just  $\frac{1}{40}$  of a grain.

We now come to by far the most important part of the subject, and the questions, in what diseases of the eye, functional or organic, is strychnia to be administered, and in what forms of disease may we expect the best results, seem at first sight difficult to answer. Nagel, in his monograph, gives a detailed account of the history of 21 cases, and from his experience draws the following conclusions: The most favourable results from the use of strychnia are to be expected in those cases of amblyopia and amaurosis, with no objective symptoms or very slight ophthalmoscopic changes. In our day we are not very prone to believe in the existence of pure paresis or anaesthesia of the optic nerve without material organic changes, and yet these changes frequently cannot be perceived; and even in cases of amblyopia from non-use, we assume that there exists a change in the molecular constituents of the axis-cylinder or nerve cells which we cannot actually see.

In cases of amblyopia with preservation of the normal field of vision,

where all other treatment, hygienic and medicinal, has failed, strychnia often gives very favourable results. In such cases the cause is generally assumed to be some disturbance in the vaso-motor influence, though sometimes no changes can be observed in the retinal vessels. Inasmuch as strychnia occasionally does good service in these cases, Nagel thinks the cause is a disturbance of the innervation of the optic nerve, and regards them as cases of paresis of sensibility, rather than as conditions of hyperæmia or anaæmia, and in this view of the subject he is, I think, entirely correct. In cases where the diminution of the central acuity of vision is accompanied by a symmetrical narrowing of the field of vision, Nagel claims very marked results from the use of strychnia, but of such cases I have seen only one or two, an experience which goes for nothing.

The most unsatisfactory cases are, perhaps, those of suddenly occurring amaurosis with no pathological changes in the interior of the eye, which we generally attribute to affections of the brain, and which as a rule remain inexplicable, and in such cases Nagel claims to have produced decided improvement, and even complete cures, by the use of strychnia. I have not been fortunate enough to meet with any such cases, and can therefore form no opinion as to the advantages of this treatment. In those cases where there are marked pathological changes in the retina or choroid, we can expect little or nothing from the employment of strychnia, since these changes are either the results of inflammatory exudation, or of atrophy, or of both combined, and are usually accompanied by deposits of pigment; and yet I recall one case, which had probably commenced as a choroiditis asthenopica, but which had gone on to a deposit in the choroid in the region of the macula, and in which the central vision had suffered severely, in which a course of six weeks' treatment by the injection of strychnia had ended in entire recovery. Nagel also claims to have gained particularly good results from strychnia in cases of traumatic amblyopia, where there exists no actual disorganization of the tissues of the globe, and he does not regard as hopeless, even those cases in which the optic nerve has suffered material changes. Still it should be remembered that many of these traumatic cases may be benefited, and the vision considerably improved by local bleedings, followed by a carefully regulated course of mercurial treatment.

Of very great interest is the influence exerted by strychnia upon cases in which the amblyopia has been caused by disuse, owing either to a great difference in the refraction of the two eyes, one being emmetropic or hypermetropic and the other myopic, or where the refraction is of the same kind, but widely different in degree in the two eyes. In a large majority of these cases, there are no pathological changes to be seen ophthalmoscopically in the amblyopic eye. In cases of a high degree of hypermetropia accompanied by convergent strabismus, with amblyopia of the squinting eye, it is well known to ophthalmologists that after tenotomy of the muscle,

vision may be brought nearly or quite up to the normal standard by careful, long-continued practice with the proper convex glasses. But this usually takes a long time and in such cases Nagel claims that the process towards a cure may be satisfactorily and rapidly accelerated by the use of strychnia. I have had but one case in which to follow out this suggestion, but the result here obtained entirely corroborates Nagel's statement.

It was a case of hypermetropia with convergent strabismus of the left eye: in the right eye Ht. of  $\frac{1}{18}$ ,  $V=1$ , in the left eye Ht. of  $\frac{1}{6}$   $V=\frac{2}{3}$  and a strabismus convergens of 4 lines. The internal rectus of the left eye was divided, and one week later the internal rectus of the right eye, and the proper convex glasses were subsequently given with directions to the patient to use each eye alone several times during the day. This treatment was kept up for several weeks, but the vision of the left eye was but very slightly improved. I then injected  $\frac{1}{40}$  of a grain of the nitrate of strychnia, and after five injections, the vision rose to  $\frac{2}{3}$  and the patient could even discern some letters of Snellen XX at 20 feet.

The most unfavourable cases under all circumstances are of course those of progressive atrophy of the optic nerves, but a distinction should be made between that variety of atrophy which results from intra-ocular trouble and that which proceeds from extra-ocular causes, whether situated primarily in the nerve itself, or originating in the brain. The latter form of atrophy may be primary or consecutive, and yet the term primary is not strictly correct, for there may be a neuritis in some part of the nerve itself within the cranium or orbit, which may reveal itself simply as atrophy of the disk, and this form is called by some authors primary, though really dependent on an inflammatory process. Atrophy of the disk presents itself in two different ways to the observer; the one is a contraction of the disk and nerve with but little tendency to cupping, the whole being of a dirty gray colour: the other is the brilliant white atrophy with perhaps some increase of tissue and marked excavation. The latter variety is much the worse, as it invades the whole nerve and surrounding retina, and is always preceded by inflammation of the nerve. The former is the more favourable of the two, since it does not invade so much of the retina, and even in the nerve itself is generally limited in extent. Of course the nutrition of the nerve, or at least that part which we see with the ophthalmoscope, is very much interfered with, as the smaller vessels all disappear and the calibre of the central retinal vessels is very much diminished. We should, moreover, remember what post-mortem examinations have taught us, that primary atrophy may occur at any point in the course of the optic nerve from the corpora quadrigemina downwards and affect the vision very seriously before any sign is seen at the disks. For a fuller account of these changes I would refer to Dr. Allbutt's most excellent and complete work on "The Use of the Ophthalmoscope in Diseases of the Nervous System."

Consecutive atrophy may result from ischæmia of the papilla, or from

optic neuritis, but after the process has lasted any length of time, it is very difficult to distinguish between primary and consecutive atrophy, as the appearances are very much the same. I have not met with such successful results from the use of strychnia in these cases as Nagel has seen, and find myself rather forced to the conclusion that in cases of progressive atrophy, whether primary or consecutive, whether of inflammatory or non-inflammatory origin, strychnia is of no permanent benefit, and rarely causes even any temporary improvement. Even Prof. Nagel, who is inclined to be somewhat sanguine, makes the following statement: "A certain degree of atrophic degeneration of the papilla should not cause us to give up all hope of success from the treatment by strychnia," though he thinks that the white discolouration of the optic disk should not be regarded as a contraindication to the employment of the drug, in which opinion we will all agree with him.

As regards the effects upon the general system of the long-continued use of strychnia, both in small and large doses, the opinion seems to be general, that, where care is taken in the administration of the drug, and its cumulative tendency thus guarded against, no bad effect results. Thomas Shortt never noticed any bad effect upon the general health in spite of colossal doses, though vertigo, headache, and muscular contractions were very frequent. I have myself given doses of  $\frac{1}{6}$  of a grain of the nitrate by the mouth for several weeks, thrice daily, without any bad results. Very recently a patient of mine with asthenopia and congestion of the disk, for whom I had prescribed strychnia in doses of  $\frac{1}{24}$  of a grain by the mouth, made a mistake, and for one week took  $\frac{1}{4}$  of a grain three times a day, and though the spasmodic contraction of the muscles was very noticeable, so much so that his actions in the street were very curious, no bad effects remained after the excessive dose was discontinued. During the administration of strychnia, the intra-ocular arterial pressure is increased, and in time there results a diminution of the arteries up to a closure of their calibre, and hence we conclude that the vaso-motor centres are irritated.

As I have frequently quoted from Prof. Nagel's work, it may not be amiss to give a short synopsis of the cases upon which he bases his opinions. In his monograph upon this subject he has published the histories of 21 cases in detail, in ten of which the disorder of vision was functional, and in eleven it depended on some organic change in the tissues of the globe or optic nerve, generally preceded by inflammation:—

"The first case was one of partial amaurosis of the left eye,  $V=\frac{1}{2}$ , with concentric limitation of the field of vision, but with no demonstrable ophthalmoscopic changes. There was marked improvement within half an hour after the first injection, and a complete cure after the second injection of gr.  $\frac{1}{32}$ .

"The second case was one of binocular complete amaurosis following measles,  $V=0$ , but with no demonstrable ophthalmoscopic changes. Improvement within an hour after the first injection, and complete cure after the fourth injection.

"The third case was one of binocular complete amaurosis,  $V=0$ , no known cause and no ophthalmoscopic changes. Treatment by strychnia useless.

"The fourth case was one of total amaurosis of the right eye,  $V=0$ , partial amblyopia of the left eye,  $V=\frac{1}{2}$ , and no positive diagnosis. In both eyes the retina and papilla were slightly cloudy, vessels somewhat engorged. Rapid improvement within fifteen minutes after the first injection, and steady improvement after each injection.

"The fifth case was one of optic neuritis of the right eye,  $V$ =fingers at 1 foot, with paralysis of accommodation. There was an improvement in the vision up to  $\frac{1}{10}$  from the use of strychnia, but no effect upon the apparatus of accommodation.

"The sixth case was one of accommodative asthenopia with amblyopia; there was no improvement until after the fourth injection, but a cure was eventually brought about.

"The seventh case was one of traumatic amblyopia with atrophic degeneration of the optic nerve and retina in one eye, and long-standing amblyopia in the other eye. In the right eye  $V=\frac{1}{4}$ , in the left  $V$ =fingers at several feet distance. After one month's treatment, divided into two courses of two weeks each, with an intermission of one month, the result was reached in the right eye of  $V=\frac{3}{4}$ , in the left eye  $V$ =almost  $\frac{1}{2}$ .

"The eighth case was one of amblyopia of the right eye from no known cause,  $V=\frac{1}{4}$ ; no ophthalmoscopic changes visible; improvement within three-quarters of an hour after the first injection.

"The ninth case was one of amblyopia amaurotica from non-use,  $V=\frac{1}{5}$ ; retina slightly cloudy; improvement within one hour after the first injection; final result,  $V=\frac{1}{2}$ .

"The tenth case was one of amblyopia in a hypermetropic squinting eye,  $V=\frac{1}{2}$ ; after several injections, the precise number not stated,  $V=1$ .

"The eleventh case was one of amblyopia and asthenopia in a myopic eye,  $V=\frac{1}{2}$ . After three weeks' treatment, on alternate days,  $V$  rose to the normal standard.

"The twelfth case was a traumatic amblyopia with turbidity of the vitreous and congestion of the papilla, with only perception of light; some improvement within half an hour.

"The thirteenth case was a traumatic total amaurosis; no account given of the ophthalmoscopic changes. Entire recovery of vision after three weeks' treatment.

"The fourteenth case was a binocular amblyopia with concentric limitation of the field of vision, and white discolouration of the optic disk. Marked improvement within fifteen minutes after the first injection, and improvement permanent.

"The fifteenth case was a progressive amaurosis with atrophic degeneration of the nerve; temporary improvement.

"The sixteenth case was a progressive atrophy of the optic nerve; cessation of the atrophic processes by strychnia; improvement of five years' duration.

"The seventeenth case was a progressive atrophy of both nerves; temporary improvement by strychnia.

"The eighteenth case was a progressive atrophy of both nerves,  $V=\frac{1}{2}$ . After two weeks' treatment by daily injection, a perfect cure was reached in one eye, and the vision rose to  $\frac{3}{4}$  in the other eye.

"The nineteenth case was one of embolus of the central artery of the retina,  $V=0$ ; perfect restoration of vision in three weeks.

"The twentieth case was one of total amaurosis following metrorrhagia; slight improvement from the use of strychnia.

"The twenty-first case was an amblyopia from hemorrhagic retinitis, with white discolouration of the nerve. Improvement of vision to  $\frac{1}{4}$  after four weeks' treatment."

Thus we see that of these twenty-one cases, ten depended upon purely functional disorders; and of the remaining eleven, dependent upon organic trouble, only six received marked benefit, and a number of these cases were

not under observation long enough to decide whether the improvement were permanent.

Having thus gone rapidly over Nagel's cases, and observed the facts upon which he bases his conclusions, I shall give a short account of some observations made upon a series of 24 cases of nerve and retinal disease which have been under my care for some time back, in the treatment of which I have relied mainly upon strychnia. For a number of these cases I am indebted to the kindness of the surgical staff of the Manhattan Eye and Ear Hospital, and to several of the staff of the N. Y. Eye Infirmary. The histories of twelve of these cases were published in detail in the *Medical Record* for August 1st, 1872, and therefore a short notice only will be made of them. Some of these cases were treated by mercurial inunction followed by iodide of potassium, and others by the hypodermic injection of strychnia, and, from the results gained, conclusions were drawn which I have now an opportunity of corroborating.

Of the cases already published, in ten the trouble was organic, and in two it was functional. Four were cases of existing inflammation, and here the improvement was not very marked. The first six cases were treated by mercury and iodide of potassium, and for that reason we may leave them out of the discussion.

The *seventh* was a case of ischæmia papillæ of the right eye of four days' duration, with only perception of light, and a gray discolouration of the nerve in the left eye, with small arteries and  $V = \frac{20}{LXX}$ , the trouble dating back six years. Within twenty minutes after an injection of  $\frac{1}{40}$  grain of strychn. nitr., he could count fingers at 6" with the right eye, and could read  $\frac{20}{XL}$  with the left. The improvement was progressive in both eyes for two weeks, when the vision suddenly fell, and an examination revealed a neuritis of both eyes. The treatment was persevered in, and in two months from the commencement of the treatment  $V$  was  $\frac{20}{20}$ , or normal in the right eye, but had fallen in the left eye to  $\frac{20}{100}$ .

The *eighth* was a case of grayish-white discolouration of the optic nerves, with patches of choroidal atrophy near the equator. R. E.  $V = \text{fingers at 18 inches}$ , L. E.  $V = \frac{20}{LXX}$ . He was treated hypodermically with strychnia, and after one month's treatment vision in the right eye remained just as it was at the beginning, but in the left eye it had risen to  $\frac{20}{XX}$ ; that is, the normal standard.

The *ninth* case was one of gray discolouration of the optic nerves and lessening of the arterial calibre; trouble dates back five years.  $V = \frac{20}{XL}$  in both eyes. Strychnia was injected every day, and after the sixth injection vision was perfectly restored.

The *tenth* was a case of gray discolouration of the papillæ with diminution of the arterial calibre, the trouble being of eighteen months' duration.  $V = \text{fingers at 10 inches}$ . After three weeks' daily injection of the nitrate of strychnia, the vision in the right eye had risen to  $\frac{20}{XXX}$ , but had fallen in the left so that he could only count fingers at six inches.

The *eleventh* was a case of marked white atrophy of the optic disks, with total amaurosis. There was no improvement after two weeks' daily trial of the strychnia.

The *twelfth* was a case of white atrophy of the optic disks. R. E.  $V = \frac{20}{c}$ , L. E.  $V = \text{fingers at 12 feet}$ . After three weeks' daily injection of the

strychnia, the vision in the right eye was  $\frac{20}{XL}$ ; in the left eye it was  $\frac{20}{LXX}$ , and so remained for a month longer.

The conclusions drawn from the results of treatment in these twelve cases were as follows: in cases of recent inflammation, such as neuro-retinitis, strychnia seems to be of little or no avail, and mercury and local bleeding seem to yield the best results. In all other cases of amblyopia or amaurosis dependent upon disease of the optic nerve or retina, whether recent or chronic, provided the disease has not lasted too long a time, the most rapid and permanent improvement was attained by the use of strychnia. This latter conclusion I have since seen reason to modify, and would now state it in the following words: in all cases of functional amblyopia we may expect good and permanent results from strychnia, and even in some cases of organic origin, provided there be no extensive atrophy of the nerve structures, some improvement is gained by the use of the drug.

Such cases are probably examples of sclerosis of the trabecular tissue of the nerve trunks and retina. Where, however, actual atrophy of the nerve fibrils exists, strychnia is in my experience useless.

The history of the second series of twelve cases will be given somewhat more in detail:—

CASE I.—J. N., aged 48, English, married, cigar-maker, presented himself at the New York Eye Infirmary, March 14, 1872. About fourteen years before, the patient was attacked with inflammation of both eyes, accompanied by great photophobia, lachrymation, and dimness of vision, but by no pain of any kind. From this attack he says that he recovered entirely in about two months, so that he was enabled to resume his occupation. He has never had syphilis, but has suffered for many years from chronic rheumatism. He has been a moderate drinker, but has used tobacco to excess. About eight months ago the dimness of vision reappeared, and has steadily progressed to date.  $V = \frac{5}{CC}$  in both eyes; peripheral limitation of the field of vision and colour-blindness, both very extensive.

*Ophthalmoscopic Examination.*—Interstitial atrophy of both optic nerves: optic papillæ a brilliant white, arteries of the retina very small, and the white lines along both arteries and veins very distinct. Dense masses of pigment in the retina, some of them anterior to the vessels, others lying deeper. Most of the pigmentary deposit is peripheral, but there are some patches very near the optic disks. The patient was directed to stop his smoking and drinking, and iron was prescribed as a tonic. The nitrate of strychnia, gr.  $\frac{1}{2}$  was injected hypodermically, and this treat-

ment was kept up for six weeks, the strychnia being injected every alternate day, and the dose being gradually increased till gr.  $\frac{1}{2}$  was reached. The vision was carefully tested at each visit, but there was no improvement, and at the end of six weeks the strychnia was discontinued, and the bichloride of mercury was administered internally in combination with iron. In about two weeks the vision showed a slight improvement, that of the right eye being  $\frac{10}{cc}$ , and of the left  $\frac{8}{cc}$ . After this visit the patient did not

return. This was undoubtedly a case of neuro-retinitis, followed by atrophy, with marked pigmentary deposit in the retina, and as seen the strychnia was of no benefit.

**CASE II.**—M. D., aged 58, English, married, presented herself at the New York Eye Infirmary April 2, 1872. The patient stated that her eyesight commenced to fail about September of the preceding year, and that since that time it had steadily grown worse. There has been no pain, but she complains of flashes of coloured light when her eyes are closed. The field of vision is somewhat limited at the periphery, but the colour perception is normal. R. E.  $V = \frac{20}{LX}$ , L. E.  $V = \frac{20}{LXXX}$ .

*Ophthalmoscopic Examination.*—The media are perfectly clear, and the pupils react normally under the influence of light. Both optic disks are abnormally white, except in the outer fourth of their surface. The arteries are perceptibly diminished in calibre, and on the disk the lateral white lines are quite distinct. The retina was turbid, and scattered all over the fundus were small deposits of pigment, most of them underlying the vessels. The choroid in both eyes showed signs of atrophic degeneration, though not very marked. She was placed upon the use of strychnia,  $\frac{1}{2}$  of a grain of the nitrate being injected hypodermically. At the next visit there was no improvement in the vision, and  $\frac{1}{2}$  of a grain was injected. On the third visit the vision of the right eye had risen to  $\frac{20}{L}$ , while that in the left had fallen to  $\frac{20}{C}$ , and from this time on there was no improvement. At the end of a month the strychnia was discontinued, and mercurial inunction was resorted to, but though kept up for a month, alternating with frequently repeated small doses of iodide of potassium, there was no change for the better. The second was also one of neuro-retinitis with consecutive atrophy, and although there was no improvement from the use of mercury, we must recollect that eight months had elapsed since the commencement of the affection.

**CASE III.**—J. R., 60 years of age, a native of Ireland, married, and a shoemaker by trade, appeared at the N. Y. Eye Infirmary, March 7, 1872, with the following complaint. The patient had always enjoyed perfect health, but some years previously he had a good deal of mental trouble and commenced to drink to excess. He had always been addicted to the use of tobacco, and since this trouble he had been a hard drinker. There was no trace of any syphilitic taint. About two months previous to admission, his eyesight commenced to fail and had grown steadily worse. There has been no pain at any time, nor is there now any visible sign of disease.

*Examination.*—R. E.  $V = \frac{20}{L}$ , L. E.  $V = \frac{20}{C}$ . No colour scotoma, and

scarcely any appreciable limitation of the field of vision. Both optic disks are of a dirty, grayish-white hue, but the retinal vessels are but very slightly diminished in calibre. Both retinæ are slightly turbid from serous infiltration, but beyond this there is no sign of any exudation nor of any inflammatory process. The patient was directed to abstain entirely from the use of liquor and tobacco, his bowels were regulated with aloes and hyoscyamus, and  $\frac{3}{2}$  of a grain of nitrate of strychnia was injected hypodermically. There was no improvement noticed till March 23, though the strychnia was injected every second day, at which date,

$$\text{R. E. } V = \frac{20}{50} \text{ L. E. } V = \frac{20}{70}.$$

March 30. R. E.  $V = \frac{20}{\text{XL}}$ , L. E.  $V = \frac{20}{\text{L}}$ ; strychn. nitr.  $\frac{1}{24}$  gr. was injected.

April 2. R. E.  $V = \frac{20}{\text{XXX}}$ , L. E.  $V = \frac{20}{\text{XL}}$ ; strychn. nitr. gr.  $\frac{1}{24}$  injected.

$$4\text{th. R. E. } V = \frac{20}{\text{XXX}}, \text{ L. E. } V = \frac{20}{\text{XL}}; \text{ strychn. nitr. gr. } \frac{1}{20} \text{ injected.}$$

$$6\text{th. R. E. } V = \frac{20}{\text{XXX}}, \text{ L. E. } V = \frac{20}{\text{XXX}}; \text{ strychn. nitr. gr. } \frac{1}{20} \text{ injected.}$$

$$9\text{th. } V = \frac{20}{\text{XXX}} \text{ in both eyes; strychn. nitr. gr. } \frac{1}{6} \text{ injected.}$$

$$11\text{th. R. E. } V = \frac{20}{\text{XX}}, \text{ L. E. } V = \frac{20}{\text{XL}}; \text{ strychn. nitr. gr. } \frac{1}{6} \text{ injected.}$$

$$13\text{th. R. E. } V = \frac{20}{\text{XX}}, \text{ L. E. } V = \frac{20}{\text{XXX}}; \text{ strychn. nitr. gr. } \frac{1}{6} \text{ injected.}$$

$$16\text{th. R. E. } V = \frac{20}{\text{XXX}}, \text{ L. E. } V = \frac{20}{\text{XL}}; \text{ strychn. nitr. gr. } \frac{1}{2} \text{ injected.}$$

$$20\text{th. R. E. } V = \frac{20}{\text{XX}}, \text{ L. E. } V = \frac{20}{\text{XXX}}; \text{ strychn. nitr. gr. } \frac{1}{2} \text{ injected.}$$

23d.  $V$  is the same.

25th.  $V$  is the same. Reads Jaeger No. 6 and Snellen  $\text{II} \frac{1}{2}$  at  $12''$  with  $+ 12$ .

From this time on, the vision remained the same, until June 6th, when it had reached the normal standard, and the strychnia was then discontinued. There was no colour scotoma at any time, and limitation of the visual field was so slight that no account was taken of it.

**CASE IV.—**J. B., aged 42, English, married, and a carpenter by trade, presented himself at the N. Y. Eye Infirmary, April 2, 1872. The patient has been a moderate drinker and a hard smoker all his life. Some five years ago he contracted syphilis, and he has since suffered from various secondary manifestations. About three months before admission he noticed that his eyesight commenced to fail him, and the dimness of vision has gradually grown worse. There has been no pain in the eyes, but the patient complains a great deal of headache.

**Examination.—**R. E.  $V = \frac{20}{\text{LX}}$ , L. E.  $V = \frac{20}{\text{C}}$ ; there is no limitation of the visual field, but his perception of colour is very much impaired. At the periphery of the visual field all colours appear white, and at and near

the centre of vision he recognizes only yellow and vermillion red. Both optic disks are glistening white over four-fifths of their extent, there is a deep physiological excavation in both eyes, and in the left the arteries are very much diminished in calibre, while in the right this change is much less marked. The patient was interdicted the use of liquor and tobacco, and although the existence of the syphilitic taint was still suspected, it was decided to put him under the influence of strychnia, and gr.  $\frac{1}{32}$  was accordingly injected hypodermically.

April 4. Vision was the same as at the first visit, and strychn. nitr. gr.  $\frac{1}{30}$  was injected.

6th. R. E.  $V = \frac{20}{L}$ , L. E.  $V = \frac{20}{C}$ ; strychn. nitr. gr.  $\frac{1}{30}$  injected.

9th.  $V$  is the same; strychn. nitr. gr.  $\frac{1}{24}$  injected.

11th. R. E.  $V = \frac{20}{XL}$ , L. E.  $V = \frac{20}{C}$ ; strychn. nitr. gr.  $\frac{1}{24}$  injected.

13th. Vision the same, strychn. nitr. gr.  $\frac{1}{20}$  injected.

16th. Vision the same, strychn. nitr. gr.  $\frac{1}{20}$  injected.

18th. R. E.  $V = \frac{20}{XL}$ , L. E.  $V = \frac{20}{LXXX}$ ; strychn. nitr. gr.  $\frac{1}{16}$  injected.

20th. Vision the same, strychn. nitr. gr.  $\frac{1}{12}$  injected.

23d. Vision the same, same treatment.

27th. R. E.  $V = \frac{20}{XL}$ , L. E.  $V = \frac{20}{L}$ ; strychn. nitr. gr.  $\frac{1}{12}$  injected.

May 4. R. E.  $V = \frac{20}{L}$ , L. E.  $V = \frac{20}{LXXX}$ ; strychn. nitr. gr.  $\frac{1}{12}$  injected.

9th. Vision the same, same treatment.

14th. Vision the same, same treatment.

From this time no change for the better appeared, and he was discharged from treatment June 1st. The perception of colour had somewhat improved.

CASE V.—T. O'K., aged 34, married, Irish, and a labourer by occupation, presented himself at the N. Y. Eye Infirmary, July 9, 1872. The patient stated that his health had always been good, except for occasional attacks of dyspepsia, but admitted that for many years he had drunk and smoked to excess. About two months ago his sight commenced to fail, and this diminution of the visual acuity was unaccompanied by any pain or signs of irritation, except that he had occasional flashes of coloured lights before the eyes.

Examination.—R. E.  $V = \frac{20}{80}$ , L. E.  $V = \frac{20}{C}$ . No limitation of the field of vision, and no colour scotoma. The media are perfectly clear, and the pupil reacts to light. Both optic disks are somewhat congested over their external quadrants, the left one somewhat more than the right; the rest of the surface of the papillæ is perhaps a shade more grayish than normal. There is no change in the appearance of the vessels, but the retina is somewhat cloudy in both eyes, particularly towards the periphery.

The patient was directed to stop his smoking and drinking immediately, his stomach was regulated by a little bicarbonate of soda and bismuth, and  $\frac{1}{40}$  of a grain of the nitrate of strychnia was injected hypodermically.

July 11. Vision the same; strychn. nitr. gr.  $\frac{1}{32}$  injected.

13th. Vision the same; stryeh. nitr.  $\frac{1}{32}$  injected. Bowels regulated by aloes..

16th. R. E.  $V = \frac{20}{LX}$ , L. E.  $V = \frac{20}{LX}$ ; stryeh. nitr. gr.  $\frac{1}{30}$  injected.

18th.  $V = \frac{20}{L}$  in both eyes; stryeh. nitr. gr.  $\frac{1}{30}$  injected.

20th.  $V = \frac{20}{LX}$  in both eyes; stryeh. nitr. gr.  $\frac{1}{24}$  injected.

23d.  $V = \frac{20}{LX}$  in both eyes; stryeh. nitr. gr.  $\frac{1}{24}$  injected.

25th. R. E.  $V = \frac{20}{LX}$ , L. E.  $V = \frac{20}{L}$ ; stryeh. nitr. gr.  $\frac{1}{24}$  injected.

27th. Vision the same as at last visit; stryeh. nitr. gr.  $\frac{1}{16}$  injected.

30th. Vision the same; stryeh. nitr. gr.  $\frac{1}{12}$  injected.

August 3. Vision the same; stryeh. nitr. gr.  $\frac{1}{12}$ .

8th. Vision the same; stryeh. nitr. gr.  $\frac{1}{12}$ .

From this time on there was no improvement, and he was discharged at the end of six weeks, dating from his first appearance.

CASE VI.—H. M., aged 35, married, German, and by occupation a porter, presented himself at the New York Eye Infirmary, July 30, 1872. The patient stated that he had been a healthy man until five years ago, at which time he contracted a chancre, which was followed by most of the secondary symptoms. Early in last March he noticed that his eyesight commenced to fail, and the cloud or veil, which at first obscured his vision, has steadily grown more and more dense, so that now he is incapacitated from doing any work. He has always been a hard drinker, and has used tobacco to excess.

Examination.— $V = \frac{5}{C}$  in both eyes; very marked central visual scotoma of both eyes, most extensive in the right eye; and marked disturbance of the perception of colour. With the left eye and central vision, red appears yellow and pink appears white—all the other colours are correctly recognized. With the right eye and central vision, red appears yellow, green and pink appear white; but these three colours are correctly recognized at the periphery and the remaining colours are recognized throughout the whole field.

Both optic disks are of a dirty white hue, there being no perceptible difference in either eye, and the arteries have dwindled to capillary dimensions. There is a slight physiological excavation in each papilla, and in the right eye there are some secondary choroidal changes between the disk and the macula, the signs of preceding inflammation. Strych. nitr. gr.  $\frac{1}{32}$  was injected hypodermically.

August 1.  $V = \frac{8}{C}$  in both eyes. No change in the visual or colour scotoma. Strych. nitr. gr.  $\frac{1}{32}$  injected.

3d.  $V = \frac{8}{C}$ ; no change in the visual or colour scotoma; stryeh. nitr. gr.  $\frac{1}{24}$  injected.

6th.  $V = \frac{16}{C}$  in both eyes; the visual scotoma somewhat diminished in the right eye. Strych. nitr. gr.  $\frac{1}{24}$  injected.

8th.  $V = \frac{16}{c}$ ; stryeh. nitr. gr.  $\frac{1}{20}$  injected.

10th.  $V = \frac{16}{cx}$ , three letters of No. LXXX. Strych. nitr. gr.  $\frac{1}{16}$  injected.

13th.  $V = \frac{16}{cx}$ . Both papillæ of the same dirty hue, but the arteries have somewhat increased in calibre in both eyes. Strych. nitr. gr.  $\frac{1}{2}$  injected.

15th.  $V = \frac{16}{LXXX}$ ; stryeh. nitr. gr.  $\frac{1}{2}$  injected.

17th.  $V = \frac{16}{LXXX}$ . No change in the visual or colour scotoma. Strych. nitr. gr.  $\frac{1}{10}$  injected.

This was the last time the man made his appearance, though the improvement had been perceptible under treatment.

**CASE VII.**—A. B., aged 39, married, Bavarian, and a shoemaker by trade, appeared at the New York Eye Infirmary, August 8, 1872. The patient has always been healthy, and has had neither syphilis nor rheumatism. He has always been a steady drinker and smoker, but never to excess. Four months ago, he says, a cloud or fog appeared over the left eye, and two months later the same thing came over the right eye. For the last six weeks he has not been able to read even the largest print, and complains of considerable frontal pain.

*Examination.*—R. E.  $V$ —fingers in 1 foot with the periphery of the visual field. L. E.  $V$ —perception of light. Both papillæ are glistening white, and the arteries are so minute as to be almost invisible. Strych. nitr. gr.  $\frac{1}{10}$  injected.

*August 10.* R. E.  $V$ —fingers in  $2\frac{1}{2}$  feet. L. E.  $V$ —same as at last date. Strych. nitr. gr.  $\frac{1}{24}$  injected.

13th. R. E.  $V$ —fingers in 3 feet; L. E.  $V$ —same as last date. Strych. nitr. gr.  $\frac{1}{16}$  injected.

15th.  $V$ —same for both eyes as at last date. Strych. nitr. gr.  $\frac{1}{16}$  injected.

17th. No change. Strych. nitr. gr.  $\frac{1}{2}$  injected.

20th. Same as at last visit. Strych. nitr. gr.  $\frac{1}{2}$  injected.

The patient never came back again, and it was obviously a case in which no further improvement could be expected from the use of strychnia.

**CASE VIII.**—J. E., aged 54, married, Irish, and a coachman, presented himself at the New York Eye Infirmary, October 1, 1872. The patient stated that he had always been healthy, and had never had any venereal disease, nor had he suffered from rheumatism. He had for many years been a hard drinker and smoker. His eyesight had been excellent up to three weeks previous to his admission, when he first noticed a slight cloudiness before his eyes while reading, and in testing first one eye and then the other, he found that the vision of both was affected. This inability to see distinctly has steadily increased, so that now he can discern only very large objects. At no time has there been any photophobia or pain.

*Examination.*— $V = \frac{16}{c}$  in both eyes; reads Jaeger, No. 17, with + 16 glass. There is a peripherical limitation of the field of vision, most

marked in the left eye, but not very extensive in either. The central perception for colour is good, but he fails to recognize any colour except blue, at the periphery. Both optic disks are of a dirty gray colour, with a slight reddish tinge on the nasal quadrant. The outlines of the papillæ are ragged and indistinct, and there is a shallow physiological excavation in each. The retinal arteries are to all appearances unchanged. The patient was directed to stop his drinking and smoking; the tincture of the sesquichloride of iron was administered internally, and strychn. nitrat. gr.  $\frac{1}{36}$  was injected hypodermically.

Oct. 3.  $V = \frac{16}{c}$ ; strychn. nitr. gr.  $\frac{1}{36}$  injected.

5th.  $V = \frac{16}{LXXX}$ ; strychn. nitr. gr.  $\frac{1}{36}$  injected.

8th.  $V = \frac{16}{LXXX}$ ; strychn. nitr. gr.  $\frac{1}{24}$  injected.

10th.  $V = \frac{16}{LXXX}$ ; strychn. nitr. gr.  $\frac{1}{20}$  injected.

12th.  $V$  = same; strychn. nitr. gr.  $\frac{1}{20}$  injected.

15th.  $V$  = same; strychn. nitr. gr.  $\frac{1}{18}$  injected.

17th.  $V$  = same; strychn. nitr. gr.  $\frac{1}{16}$  injected.

19th.  $V = \frac{16}{LX}$ ; strychn. nitr. gr.  $\frac{1}{16}$  injected.

For the first time some improvement in the field of vision is noticeable in both eyes.

22d.  $V$  = same; strychn. nitr. gr.  $\frac{1}{12}$  injected.

No visible change in the disks, but the white atrophic ring surrounding the papilla has grown more and more distinct, and patches of pigment have made their appearance in the choroid.

26th. Marked perivasculitis following some of the vessels as far as the equator.  $V = \frac{20}{XL}$ ; strychn. nitr. gr.  $\frac{1}{12}$  injected.

29th. Vision had again fallen to  $\frac{20}{XL}$ , and the strychnia was discontinued.

From this time on all special treatment directed to the ophthalmic lesion was abandoned, and the patient was directed to take a tonic of iron and quinia, and a gentle laxative was administered. The man remained under observation for a month longer, and at the last visit his vision was  $\frac{20}{XL}$ .

CASE IX.—L. F., aged 26, single, Irish, clerk, presented himself at the Eye Infirmary, October 10, 1872. Four months ago he had an attack of iritis in the left eye, and one month later the same in the right eye, for which he underwent a thorough antiphlogistic treatment. Passavant's operation for breaking up posterior synechiae was performed several times on the right eye. From these he fully recovered, and his vision was nearly as acute as ever, but he soon developed neuritis in the same eye which has ended in atrophy. On the day of admission R. E.  $V = \frac{3}{c}$  with the inner

half of the retina. An ophthalmoscopic examination showed the optic disk to be of a brilliant white colour, a deep central atrophic excavation down to the lamina cribrosa, the vessels very much diminished in calibre

and nearly all of them showing marks of perivasculitis. The field of vision was limited to the outer half and he failed to recognize any colour except blue. Strych. nitr. gr.  $\frac{3}{16}$  was injected every day for two weeks, but the vision steadily grew worse, till October 26, he could only recognize CC at one foot, with strong illumination, and he was discharged as incurable.

CASE X.—H. C., aged 41, married, Irish, baker, presented himself at the N. Y. Eye Infirmary, October 24, 1872. He lost his right eye by phthisis bulbi when two years old. The vision of the left eye was good up to two years ago. Several years before he had suffered from a bad attack of acute rheumatism, and he has never been free from it since. He has been for many years a hard drinker and smoker, and has been much exposed to cold and wet in his business. The first thing he noticed about his left eye was a ptosis of the upper eyelid, which was followed by a dimness of vision; even when he lifted up the lid with his hand. The sight has steadily grown worse, and there is marked limitation of the field of vision, only a small segment of the upper and outer part of the retina remaining intact. From January 27 till March 14, 1872, he was treated by large doses of iodide of potassium, and from the latter date till May 1, by hydrarg. bichlor. From May 1 till August 31, 1872, he had taken strychnia by the mouth daily, but the dose I could not ascertain. When I first saw him,  $V$  was  $\frac{2}{LXX}$ . The papilla is of a glistening white colour, with a deep, central atrophic excavation, but the arteries are not much diminished in calibre. Strych. nitr. gr.  $\frac{1}{24}$  was injected, and he received a daily injection up to November 30, without any improvement, and he was then discharged as incurable.

CASE XI.—W. M., aged 23, single, carpenter, presented himself at the New York Eye Infirmary, Nov. 5, 1872, with the following story: the vision of the right eye had been very poor for three or four years, the trouble having come on gradually without any pain. About a week previous to his admission the vision had suddenly grown very much worse. He complained of a haziness of all objects, great pain, and photophobia, the pain being worse at night. An examination showed the vision in the right eye to be  $\frac{16}{C}$ , in the left eye normal. There was a recent neuro-retinitis in an eye where the optic nerve was far advanced in progressive atrophy. The disk was very white except at the periphery where there was considerable redness and oedema. The central atrophic excavation was very deep, and the arteries were very much diminished in calibre. The retina was markedly oedematous and the vitreous humour somewhat hazy. Two leeches were applied to the temple, strych. nitr. gr.  $\frac{1}{36}$  was injected hypodermically, and the patient was directed to wear blue glasses. On the third day there was less haziness of surrounding objects and less photophobia, but the vision was the same. The strychnia was injected every day until  $\frac{1}{16}$  of a grain was reached, and on December 5th, one month after the commencement of the treatment, the signs of neuritis had all disappeared with the exception of the enlarged and tortuous veins. The vision, however, showed no improvement, and the optic disk still showed the glistening white appearance of advanced atrophy.

CASE XII.—L. B., aged 55, American, married, peddler, presented himself at the New York Eye Infirmary, Oct. 10, 1872. The patient has been a tolerably healthy man, but owing to his occupation, has continually been exposed to a great deal of inclement weather. He has been a hard drinker and smoker for many years. The failure of his vision dates back a year ago, at which time he noticed an indistinctness or haziness of objects before his eyes, and this dimness of vision has slowly but steadily grown worse, until now he cannot attend to his business. Vision in both eyes was  $\frac{20}{CC}$ ; no limitation of the field of vision, but he could recognize no colour but blue, whether with central or eccentric vision. Examination with the ophthalmoscope showed both optic disks to be of a dirty gray colour, except at their periphery, where they showed a delicate rose colour. The vessels were not noticeably diminished in calibre, but there were signs of commencing perivasculitis along the arteries, showing the *vasa vasorum* to be involved. There was a small central excavation of the papilla, probably physiological in nature. The patient was told he must stop his drinking entirely, and limit his smoking to twice a day; his bowels were regulated with aloes and *hyoscyamus*, and *strych. nitr. gr.  $\frac{1}{30}$*  was injected. After the second injection vision rose to  $\frac{20}{C}$ , and from this time the improvement was steady until the tenth injection, when it was  $\frac{20}{XL}$ . Here it remained, and although the patient was kept three weeks longer under treatment, there was no further improvement. Ophthalmoscopically the disks had very nearly regained their natural appearance.

Most of these twelve cases may be regarded as instances of amblyopia *potatorum*, or amblyopia from the abuse of tobacco, inasmuch as the patients confessed to the excessive use of both alcoholics and tobacco, and it is a very generally admitted fact that the constitutional effects of these substances frequently manifest themselves in a disturbance of vision, as well as elsewhere in the body. It will be seen that some of the cases had undergone a previous course of mercurial treatment, while in others, after strychnia had been used for a time, it was discontinued and mercurials were resorted to, and these in turn gave place to the strychnia again. This was done in accordance with the recommendation of Shortt, of Edinburgh, who stated that a preceding mercurial treatment sometimes enhanced the effect of the strychnia. This I did not find to be the case.

Shortt's opinion that the strychnia could only be employed successfully in cases of amaurosis dependent upon paralysis of the optic nerve and retina, or in cases of congestive amaurosis where pressure is caused by the distended capillaries of the neurilemma, I believe to be entirely correct.

Another conclusion to be drawn from the examination of these cases, is, that when we do not see any improvement after the first three or four injections of strychnia, not much advantage is to be expected from its use, and in this view several of my colleagues coincide.

In the last number of the *Annales d'Oculistique*, Gori, of Amsterdam,

states that even in cases where the loss of vision is accompanied by marked anatomical changes, a sensible amelioration may be procured by the use of strychnia; but he regards the frequently repeated injections as inconvenient, because they give rise to inflammatory swelling of the subjacent cellular tissue. Instead of these he paints the margin of the orbit and the temple with the following preparation: R—Tinet. iodinii 3j, strych. nitr. gr.  $\frac{1}{3}$ , and claims good results.

No. 7 WEST 46TH ST., N. Y.

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ART. VI.—*On Thrombosis of the Cerebral Arteries.* By JOHN A. LIDELL, M.D., of New York.

OCCLUSION of the cerebral arteries with plugs of fibrin or clots of blood which have been brought in the current of the circulation from the left chambers of the heart, the pulmonary veins, or some other distant part, or, in other words, cerebral embolism, is an accident which frequently occurs and has attracted much notice. Prof. Virchow, in Germany, and the late Dr. Kirkes, in England, first called attention to this subject, the former in 1847 and the latter in 1852; but the latter does not appear to have been acquainted with the former's discovery. Already a great many cases of this disorder have been placed on record. But the cerebral arteries may also become stopped up with clots of blood or fibrin which have been formed from the blood itself at the place of obstruction. This accident is usually denominated *thrombosis* of the cerebral arteries, in accordance with Virchow's recommendation, as we have elsewhere shown. It has, however, been met with much less frequently than embolism of these arteries. It has also attracted a great deal less attention than the latter disease, and probably much less than it really deserves; for it doubtless occurs much more frequently than is commonly supposed, and when present generally leads to disastrous consequences in the shape of cerebral paralysis and cerebral softening. Moreover, the relationship which thrombosis of the cerebral arteries bears to these consequences is in most instances overlooked unless these arteries happen to be subjected to careful examination after death.

*Clinical History and Varieties.*—Thrombosis of the cerebral arteries is most frequently met with in persons who are considerably advanced in years or have become prematurely old, and whose cerebral arteries are the seat of extensive changes of an atheromatous character. In such cases the phenomena and anatomical lesions are so uniform that they justly constitute a separate variety of the disorder, which is sometimes called *senile thrombosis* of the cerebral arteries. We propose to lay before the reader several illustrative examples of it, and before doing so remark that, in many respects,

its pathogeny bears a strong resemblance to that of senile thrombosis of the arteries of the lower extremity, an account of which the writer gave in the number of this Journal for January, 1873.

CASE I.—Dr. Kelly records (*Lancet*, vol. i., 1870, p. 409) the case of a woman, aged sixty, suddenly attacked with hemiplegia; coma afterwards gradually came on, and death supervened. On *autopsy* there was found thrombosis of the middle cerebral artery, atheroma, white softening of brain, etc. She had had premonitory symptoms in the shape of suddenly-occurring paralysis of her right arm and leg, from which she seemed to completely recover in the course of a few days; but in a short time thereafter she lost the use of her other or left arm and leg. Subsequently the symptoms of cerebral paralysis gradually became more strongly marked, she sank after some time into a state of coma, and died in that state about seven weeks from the beginning of her last attack. At the *autopsy* the right hemisphere of the cerebrum was found to be affected with white softening to such a degree that it broke down under a gentle stream of water, the middle cerebral artery of the right side was completely occluded by an old clot of fibrin, and the walls of that vessel, together with those of the large arteries at the base of the brain, were much changed by atheromatous degeneration; at the same time the left side of the brain was healthy, and no trace of cerebral hemorrhage or any former disease could anywhere be found. The softening of the right hemisphere was obviously due to the occlusion of the corresponding middle cerebral artery, and the occlusion itself was due to thrombosis and not to embolism, for the heart and the great cavities were healthy, and no place could be found from which embolia might have emigrated. The occluding fibrin was therefore, without doubt, formed from the blood at the place of obstruction.

Now, what caused the thrombosis of the middle cerebral artery which presented itself in this woman? Dr. Kelly answers this question, at least in part, when he says "the artery was very atheromatous" at the place of occlusion, "and the fibrin seems to have been deposited upon its roughened inner coat." Atheromatous degeneration of the walls of this artery then appears to have been the most conspicuous cause of the thrombosis. It was, however, not the efficient but only the predisposing cause of the formation of a coagulum. It had probably existed for some considerable time without inducing such a result. The exciting or efficient cause of the thrombosis was in all probability preternatural coagulability on the part of the fibrin of the blood itself. The canal of the middle cerebral artery above mentioned, narrowed and roughened as it was by atheromatous disease of its walls, was strongly predisposed to become occluded with a fibrinous coagulum, if such coagula should happen to form in any part of the arterial system; and when the blood became abnormally coagulable from senile marasmus or some other change in its composition, such a coagulum was quickly deposited in the calibre of the atheromatous vessels.

The paralysis of her left arm and leg and of the left side of her face, with which the last attack began, was no doubt due to the anæmic condition of the right hemisphere of her cerebrum, or rather to the anæmic condition of its nerve-filaments and ganglion-cells, that resulted from the occlusion of the corresponding middle cerebral artery with a thrombus. This anæmic state of a considerable part of the cerebral substance did not become relieved through the establishment of a collateral circulation, nor in any

other way. Consequently the portion of brain-substance which was thus deprived of nutrient blood died and underwent softening or mortification, just as the toes and feet do when they are deprived of nutrient blood from thrombosis of the tibial arteries and their branches. As the softening of the brain-substance progressed the symptoms of paralysis gradually became more numerous and strongly marked. Her consciousness and memory, which at first were unimpaired, after a time deserted her by degrees, and she ultimately sunk into a comatose condition, which was attended with paralysis or relaxation of all the sphincter muscles. In this state she died.

Finally, what was the cause of the premonitory symptoms, such, for example, as the transient paralysis of the right arm and leg, which this woman exhibited a week or two before the last seizure occurred? It is not difficult to conceive how they may have been produced, and why they disappeared. The following explanation, however, appears to me to be the most feasible: At that time some small artery or arteries of the left cerebral hemisphere, which were already atheromatous, became stopped up with thrombi or thrombosed, and the corresponding portion of brain-substance was consequently deprived of its blood-supply. Incomplete paralysis of the opposite or right half of the body immediately ensued. But, after the lapse of a few days, the anæmic condition of the above-mentioned part of the left cerebral hemisphere was removed by the establishment of a collateral circulation. Then the functional activity of this part of the brain was restored to corresponding extent, and the symptoms of paralysis of course disappeared. No lesion was found in the left cerebral hemisphere at the autopsy, because, perhaps, the small arteries were not examined with sufficient care.

CASE II.—Dr. Kelly also records (*Lancet*, vol. i., 1870, p. 410) the case of a woman, aged fifty, who suddenly fell down insensible, and lost the use of her right arm and leg; the right side was also quite rigid; she lay semi-comatose, and died nine days after attack. On *autopsy* thrombosis of the left middle cerebral artery, atheroma, and diffuent white softening of brain were found; heart and aorta healthy.

This patient, like the other, was an old woman who had incomplete hemiplegia, thrombosis of middle cerebral artery on the opposite side, atheromatous disease of the coats of this artery, together with those of the basilar, internal carotid, and other arteries of the base of the brain, and diffuent softening of the part of the left cerebral hemisphere which derived its blood-supply from the thrombosed artery. But the softening of the brain-substance ran a much shorter course in this case than it did in the last, for the patient survived her attack only nine days. Moreover, it is not stated that she had any premonitory symptoms, while the first mentioned patient exhibited them in a striking manner. But it is possible that the warning signs were unnoticed or overlooked in the last-mentioned case; and the more so, because the patient was in a semi-comatose state,

and not to be roused without difficulty while in hospital, and therefore, in all probability, unable to describe the phenomena which had preceded her attack. We have mooted this point because senile thrombosis of the cerebral arteries is almost always preceded by warning symptoms. This results from the fact that the atheromatous condition of the cerebral arteries usually exists a long time before thrombosis occurs; and the atheromatous condition of these vessels is apt to produce disturbance of the cerebral circulation with corresponding disturbance of the cerebral functions from narrowing of the cerebral arteries, on the one hand, or it hastens and aggravates the symptoms of a senile atrophy of the brain-substances that has already commenced, on the other. Such patients often complain of headache, vertigo, tinnitus aurium, flashes before the eyes, forgetfulness, and inability to think; they become apathetic, indifferent, and much inclined to sleep, but their sleep is disturbed by uneasy dreams (*Niemeyer*). Besides, they may temporarily suffer from the paralysis of certain muscles, or certain groups of muscles, as the first-mentioned patient did.

CASE III.—Prof. Bennett relates (*Clinical Lectures*, pp. 390, 391, 5th Am. ed.) the case of a pensioner, aged fifty, long subject to vertigo, for which he had been bled fifteen times, having undergone unusual bodily fatigue and great mental excitement, was suddenly seized with pricking and numbness in the left arm, commencing in the fingers, followed by thickness of speech which rapidly increased to complete loss of speech, hemiplegia, general paralysis, coma, and death on the fifth day after attack. On *autopsy* thrombosis of basilar artery, atheroma, softening of pons Varolii, an old hemorrhagic cyst in left corpus striatum, etc., and pneumonia were found; heart healthy.

This case belongs to the same category as the two whose histories have preceded it. The leading features of all of them are similar. After the occurrence of premonitory signs or warnings, the symptoms of paralysis appeared, and gradually became more numerous and strongly marked, until the patient sank into coma and carus, and thus died. At the autopsy, atheromatous disease and thrombosis of the cerebral arteries, and necrotic softening of the cerebral substance were found. These cases, however, all differ somewhat in minor particulars. In the first case the right middle cerebral artery, in the second the left, and in the above the basilar was the seat of the thrombosis. In the first case the right hemisphere of the cerebrum, in the second the left, and in the last the pons Varolii was the seat of the necrotic softening of the brain-substance. In the first two cases there was hemiplegia; in the last the paralysis began in the left arm and leg, but finally it involved the right side of the body also. In all of these cases, but especially the last, the symptoms came on very gradually, as they oftentimes do in cases of cerebral hemorrhage, and in this respect marasmic thrombosis of the cerebral arteries bears no inconsiderable resemblance to that disease.

Dr. Packard related an interesting case of thrombosis of the basilar

and right carotid arteries, to the Pathological Society of Philadelphia (December, 1859).

"The patient was a bachelor, aged 51. At six o'clock in the morning, at the beginning of February, he was seized with paralysis of the left arm and leg. He was a man of very regular habits, of fanatical love for everything instructive, and an accomplished scholar in botany, geography, and languages. The paralysis was soon relieved, and he was able, four weeks afterwards, to go out again and to use his arm tolerably well. About the middle of March, in consequence of a fatiguing walk the previous evening, and an attack of diarrhoea during the night, complete paralysis returned. From this he never recovered, but yet did not die till the December following. Previous to this termination he had confusion of ideas and delirium. Upon post-mortem examination, among other morbid changes, a cavity in the right corpus striatum was found, and this was surrounded by a spot of softening of the cerebral substance as large as an egg. The basilar artery was completely blocked up with clots, as was also the right carotid. These vessels were atheromatous, and the basilar artery was aneurismally dilated. The clots had all the appearances of being old."

This was also a case of so-called senile thrombosis. The subject was old, his cerebral arteries atheromatous, and his habits seem to have been sedentary. It is probable that the paralysis of his left arm and leg, which presented itself at the beginning of February, was due to the occlusion of some small artery of the right cerebral hemisphere with a coagulum, and that it went away again because the consequences of such occlusion were relieved by the establishment of a collateral circulation.

Again, it is important to notice that the last seizure was preceded by a fatiguing walk and an attack of diarrhoea, which his physician considered to have brought back the paralysis, or, in other words, to have induced the thrombosis which finally proved fatal. And his physician was doubtless correct in this opinion, for excessive fatigue would tend to produce arterial thrombosis in a person already predisposed to its occurrence, as this man was by reason of the atheromatous disease of his cerebral arteries, because it would weaken the action of his heart and thus cause the blood to be sent through the arteries with lessened force and rapidity. The attack of diarrhoea would also weaken the heart's action still more; but it would tend much more strongly to induce thrombosis by increasing the coagulability of the blood itself, which it does by suddenly diminishing the volume and increasing the thickness of the circulating fluids from the withdrawal of their watery and saline elements that usually attends it. In this way we not unfrequently see an attack of diarrhoea produce thrombosis of the cerebral sinuses in marasmic children, etc. In the above-mentioned case, then, the causes which produced the thrombosis of the cerebral arteries were: 1st. The atheromatous condition of those arteries. 2d. The weakening of the heart's action. 3d. The abnormal coagulability of the blood; and 4th. Excessive fatigue and an attack of diarrhoea, acting in the way just mentioned. But the basilar artery exhibited aneurismal dilatation as well as atheromatous degeneration of its walls, and this con-

dition also favoured the stagnation of blood and the formation of thrombus in that vessel.

Dr. Echeverria has published (*Medical Record*, March 1, 1869) a case in which thrombosis of the basilar artery led to a very unusual termination.

"A man aged 67, subject to epileptic fits from youth, after complaining for months of dizziness, confusion of ideas and absent-mindedness, difficulty in moving and protruding the tongue, and dysphagia, suddenly died while straining at stool. On *autopsy* an extensive extravasation of blood was found at the base of the brain, which had escaped from a ruptured aneurism of the left vertebral artery. The right vertebral artery was also aneurismally dilated. The basilar artery and both vertebrals at their place of junction were occluded by a thrombus. The walls of these arteries and of the others at the base of the brain were in a state of fatty and atheromatous degeneration."

In this case the occlusion of the basilar artery and both vertebrals at their place of junction, with coagula, did not produce necrosis of the brain-substance, because the parts which at first were exsanguinated were soon able to get an adequate blood-supply through such collateral channels as the circle of Willis, and especially through the posterior communicating and posterior cerebral arteries of both sides. But the thrombosis of the above-named arteries led to a fatal result in an entirely unique manner; for it caused each cerebral artery to become the seat of aneurismal dilatation near the place of occlusion, and finally, when one of these aneurisms burst, death was produced by cerebral hemorrhage. This case, however, corresponds to the other cases of thrombosis of the cerebral arteries which we have related in respect to the age of the patient, and the fatty and atheromatous state of the arteries which were the seat of thrombosis.

CASE IV.—A man, aged 40 (*Med. Gazette*, vol. vii. p. 319), after complaining of paralysis of right side of face and tongue, with vertigo, tinnitus, and disordered vision, for ten or eleven days, the treatment meanwhile being very active, was suddenly observed to have dyspnoea and hemiplegia of the left side. Soon afterwards he became comatose, and in forty-four hours died. On *autopsy* the basilar artery was found to contain a considerable coagulum; at one point its calibre was plugged up with fibrin; its coats were thickened; lungs and heart healthy.

The above was not a case of apoplexy, although it may be found in Copeman's collection of cases belonging to that category; for the loss of consciousness and coma did not come on suddenly enough to constitute that disease. The premonitory symptoms, however, were very strongly marked, and they are detailed with considerable minuteness in the report. These symptoms were vertigo, tinnitus aurium, diplopia, amblyopia of right eye, and paralysis of certain muscles belonging to the right side of his face and tongue. They were probably due to thrombosis of minute arteries in the right hemisphere of his cerebrum. But the basilar artery did not become stopped up with coagulum until the morning of the 13th, more than four days after he entered the hospital. The occurrence of this

accident was denoted by the advent of paralysis of the left arm and leg, with snoring respiration, the patient being still conscious when roused. In a short time, however, he became comatose, and remained so till the evening of the 14th, when he died. At the autopsy the brain-substance was not found to exhibit any considerable degree of necrotic softening, because he did not survive the thrombosis of the basilar artery long enough for that to occur.

This patient was much younger than any other whose history we have thus far related, too young, indeed, to be the subject of senile thrombosis of the cerebral arteries, unless, perchance, he had become prematurely old from excesses in living or from the operation of disease. His age was only 40 years. Besides, the account of the autopsy is defective in an important particular, for it does not inform us whether the thickening which was found in the walls of the basilar artery was due to atheromatous degeneration, or to inflammatory or syphilitic hyperplasia. This case, however, from its vagueness in this respect, can serve well to introduce us to some other varieties of thrombosis of the cerebral arteries.

We must now proceed to consider a class of cases in which thrombosis of the cerebral arteries occurs, that is quite distinct from the foregoing, and may with propriety be said to constitute a *second* variety of this disease. It possesses considerable importance, as the cases which we are about to relate will show. In this variety the formation of the occluding clot or thrombus is not due in any way to endarteritis deformans or atheromatous degeneration of the vascular walls; but to an inflammatory process of a more active character, involving all the coats of the affected artery—to an arteritis which is more or less acute, and is always local or circumscribed in situation. Besides, it is attended with characteristic changes in the arterial walls. We shall speak of this variety as *cerebral thrombosis, the result of arteritis*. It usually presents itself in subjects who are much younger than the victims of senile thrombosis. Its invasion is generally more sudden, and it is often unattended with premonitory symptoms. The following is a case in point.

Dr. Atkins reports (*Medical Record*, vol. i. p. 19) the case of a robust seaman which, in the suddenness of the attack, and its not being preceded by any head symptoms, differs widely from those related on the preceding pages of this essay. It also differs just as widely in regard to the lesions which were revealed by the autopsy.

CASE V.—This patient, after feeling poorly for a few days, suddenly became hemiplegic on the right side, and lost his consciousness. In a short time, however, his consciousness returned, but the hemiplegia remained. In this state he entered the Brooklyn City Hospital. There the symptoms of paralysis improved somewhat. But about six weeks after admission a great change occurred. The left side of his body now became much affected with loss of heat, but it did not appear to be paralyzed. Two days afterwards he sank into a state of coma; and in three days more he died. The autopsy showed that the middle cerebral artery of his left side was blocked up with a comparatively old thrombus, and

that the middle cerebral artery of his right side was occluded with a quite recent thrombus. The first-mentioned coagulum was probably formed just before the hemiplegia and the apoplectiform symptoms appeared, and the last when the left side of his body unexpectedly became cold. The left corpus striatum was found to be softened and darker in colour than usual. Hence the hemiplegia was persistent. The arterial walls were examined with the microscope and found to be free from atheroma. But the thrombosed vessels were both affected with arteritis at the place of obstruction. The inflammatory process had caused the coats of these arteries to become thickened at those points. In this way the calibre of each of them was encroached upon and narrowed, and the formation of a thrombus induced.

It is not improbable that a local arteritis of this sort tends to make the blood coagulate in still another way, namely, by causing the wandering cells to pass in considerable numbers from the inflamed tissue into the blood contained within, for we know from the investigations of Von Recklinghausen and Bubnoff that such cells may pass through the coats of bloodvessels, and we also know from the researches of Alex. Schmidt and Prof. Montegazza, that these cells are capable of imparting a coagulating influence. (Vide *New Sydenham Soc. Year-Book*, 1862, pp. 20-22; and 1869-70, p. 6.) It is not improbable that when these wandering cells are introduced, in large numbers, into the blood, in the above mentioned way, they soon cause it to coagulate, and thus lead to the occurrence of thrombosis.

Again, M. Hayem has related (*Gaz. Hebdomadaire*, No. 14, 1868), two cases of rapid death from occlusion of the basilar artery with coagula which had been formed in consequence of local arteritis. These cases were strikingly analogous.

The subjects were both females; one was thirty-three years of age, the other fifty-two, but complete histories could not be obtained. Both of these women, however, died very suddenly with symptoms of intense apoplexy, and nothing was found to account for death save thrombosis of the basilar artery.

On making a thorough *post-mortem* examination, it was found that the walls of the basilar artery were the seat of very important changes of an inflammatory character, which may be briefly described as follows: At one point in the walls of the artery there was developed a patch of thickening, which had considerable depth at the centre, but its margins were diffused. This thickening involved all three tunics, but particularly the internal one; or, to speak more precisely, the deep part of that membrane. Over this swelling, the adventitious coat was abnormally vascular; in one of the cases large vessels could be seen with the naked eye. The artery was embossed on its exterior, whilst its calibre was diminished, by this inflammatory swelling of its walls; it looked white, opaque, and horny; its consistence was firm, like fibro-cartilage. On transverse section, the swollen patch was seen to be five or six times thicker than the opposite side of the artery, and, on pursuing the examination, it was found that an excised slice was made up of a series of layers which were apparently separated by exudation. These layers pushed inwards the internal and slightly extensible membrane, until they caused its rupture, and then they set up coagulation in the blood passing by the rent.

If more minute investigations be made in cases of this kind, the pre-existing elements may be seen in all parts of the swelling, enlarged by a granular exudation, and possessing abnormally two, three, or even a greater number of nuclei, and externally to these elements a profusion of

new elementary forms may also be found. Thus, there is interstitial exudation and multiplication of the morphological constituents of the walls of the artery. Although this process is an inflammation of the walls of the artery, it is not simply an endo-arteritis or peri-arteritis; for the pathological changes affect all three of the vascular tunics, presenting among other features special alterations in the middle coat. In fact, the middle coat is the seat of an abundant multiplication of new elements, and the smooth fibres themselves take part in this new formation. It is in this respect that the lesion just described differs from that which accompanies endo-arteritis, or even meso-arteritis, and from the hypertrophy of the middle tunic resulting from transformation of the muscular elements into the connective tissue described by Langhans. Thus, when considered from an anatomical point of view, we find that there is presented in these cases reported by M. Hayem, a form of arterial thickening remarkable from its involving all three of the coats, and from its being undoubtedly inflammatory in its nature.

One of these women also was rather young. In both of them the attack came on quite suddenly with the symptoms of apoplexy, as it did in the sailor's case above related. In both of them the basilar artery was the seat of the thrombosis; and a circumscribed inflammation of the coats of that vessel had obviously caused the blood to coagulate while passing through it, and had thus occasioned the thrombosis. The changes which the inflammatory process had produced in the arterial walls are minutely described by the reporter. It involved all three of the arterial tunics and caused much circumscribed swelling. It caused the artery to present an embossed appearance externally, and also caused the internal laminæ to be pushed inwards so as to encroach a good deal upon the canal of the artery; and finally it burst through or tore the brittle inner coat. The microscopical appearances which this inflammatory swelling of the arterial wall presented are also carefully detailed. So far as the anatomical description is concerned, these women's cases are the complement of the Brooklyn City Hospital case. They afford a full account of that which the latter conspicuously lacks.

Again, M. Hayem found that local arteritis induced thrombosis of the basilar in these women in still another way from those which were observed in the case of the sailor, namely, by causing a rent to be made in the lining membrane of the artery, the effect of which was to cause the blood passing over it to become entangled and form a coagulum in precisely the same way that it does in cases where the inner coat of an artery has been torn through, as a consequence of external injury. Thus we find that local arteritis may tend to produce thrombosis in several different ways, for example: 1st, by narrowing the arterial bore; 2d, by lacerating the inner coat; and 3d, by discharging amoeboid cells or wandering leucocytes into the blood itself.

The next variety of thrombosis of the cerebral arteries which claims our attention is the *syphilitic*. The victims of constitutional syphilis are occasionally stricken down with a paralysis of one side of the body, which is followed by symptoms of cerebral softening, general paralysis, coma, and death. On making a *post-mortem* examination of such a subject, one or more of the cerebral arteries is found to be narrowed by syphilitic thickening or gummy swelling of its walls, its calibre is also completely occluded with blood-clot at the place of tumefaction, and the corresponding part of the brain substance is in a state of necrotic softening. The syphilitic therefore constitutes a *third* variety of thrombosis of the cerebral arteries. A good many examples of this affection have already been placed on record. We may also remark that in a paper on thrombosis of the arteries of the extremities which was published in the number of this Journal for January, 1873, we presented some cases in which the thrombosis was probably due to constitutional syphilis or a syphilitic dyscrasia. The following however, belongs to the category of syphilitic cerebral thrombosis:—

Dr. Bristowe, at a meeting of the Pathological Society of London, held Nov. 1, 1864, (*Lancet*, Nov. 12, 1864) brought forward a case of obstruction of the middle cerebral artery with a thrombus and softening of the brain. The patient was suddenly seized with loss of power on one side, giddiness, etc. He had had secondary syphilis four months previously. After a slight improvement he was again seized with unconsciousness, and paralysis of the side opposite to the one first affected, followed by coma and death. The heart-sounds were healthy. After death the right cerebral artery (middle) was found obstructed by a decolourized clot, and the right middle lobe was softened throughout. There was also a cavity in the left corpus striatum. Dr. Bristowe also referred to some cases which he had published some years ago, in which obstruction of the arteries had occurred after an attack of syphilis, to which attack he was inclined to attribute the coagulation of the blood.

The following case, related also by Dr. Bristowe, is likewise in point:—

A man, aged 34, had vertigo, cephalalgia, and epileptiform attacks; the movements were feeble on the left side, the sight less clear or impaired, and there was, moreover, some difficulty of speech. Later on, coma and death supervened. At the *post-mortem* examination, traces of cicatrized buboes were discovered in the inguinal regions. The thickened dura mater adhered, by the aid of a fibroid tissue, to the cerebral substance, which was softened at the point of adhesion, and contained at that point several tumours of an opaque white colour, and of the size of a nut. At the anterior part of the corpus striatum there existed a cyst of the same size. The rest of the brain was healthy, but *the right carotid artery and its branches were obliterated by fibrous cords adherent to the vascular wall*. The liver, studded with cicatrices, contained several small, knotty tumours. (*Vide Lancereaux's Treatise on Syphilis*, vol. i., p. 402, New Sydenham Soc. translation.)

Dr. Lancereaux himself saw the following case in the practice of Prof. Grisolle:—

A young man of 25, five months under treatment for a syphilitic eruption which did not disappear, sank rapidly after having presented the phenomena of encephalitis. At the *post-mortem* examination we found, together with tumours of a small size, a partial encephalitis, and an *almost complete obliteration of both internal carotid arteries at their termination*. The diseased arterial walls were the seat of a neoplasm, which rendered them thicker and greatly diminished their calibre. It was not a question, in this case, of an atheroma-

tous lesion, but of a product formed of rounded nuclei and some cells of connective tissue. (*Ibid.*, pp. 402, 403.)

The same writer relates another case of the same sort, of which the following is a brief abstract:—

A woman, aged 45, entered La Pitié, July 24, 1860, complaining of cephalgia, insomnia, and giddiness, with weakness of memory, and loss of muscular power on the right side. She had for ten years been the victim of syphilitic neuralgias, which from time to time were relieved by taking iodide of potassium. About four weeks after admission, complete hemiplegia of the left side supervened in a few days; the sphincters also were paralyzed, and there was almost constant weeping. Subsequently she improved so much, under the use of syrup. ferri iodid. and potass. iodid., that she could get up and walk about the ward with but little assistance. Some days after this there was loss of consciousness, from which, however, she recovered. But ultimately the phenomena of general paralysis appeared, she sank into a deep cachexia, and died at the Salpêtrière, Sept. 18, 1861. The autopsy showed that the bones of the cranium were hypertrophied, that the cerebral substance was everywhere softer than natural, and contained many yellowish masses formed in great measure of fatty elements, and that certain of the arteries which supply the brain were thrombosed. "The left internal carotid artery was partly obliterated, near the cavernous sinus, by a membrane which terminated in a point and adhered closely to the wall of that vessel. This membrane, which was formed of nuclei and of cells of connective tissue more or less changed, presented at some points a rusty color, due to the presence of numerous grains of haematin and crystals of haematoxin. The walls of the artery were not atheromatous at that point. In the right carotid was a coagulum which, adherent at both ends, obstructed only a small part of the calibre of the vessel; it was composed of fibrin, nuclei, and cells of connective tissue." (*Ibid.*, vol. ii. pp. 60-64, Sydenham Soc. translation.)

The presence of numerous grains of haematin and crystals of haematoxin in the substance which was found in the left internal carotid artery, partly filling up its calibre, shows that it originally was a blood-clot.

CASE VI.—Dr. Hughlings Jackson has observed (*Lancet*, Oct. 27, 1866, pp. 467, 468) the case of a man having hemiplegia of the left side, with some dulness of intellect, and indisposition to talk, who died rather unexpectedly in the London Hospital. Some years before, he had exhibited symptoms referable to secondary syphilis. On autopsy no disease was found except in the brain. The carotid arteries on each side were, from the point at which they were cut to the origin of the anterior and middle cerebral arteries, much thickened externally; and this thickening extended about a quarter of an inch up each of these vessels in the shape of a node, ending abruptly. The *right middle cerebral artery* was much narrowed at one point, and was *blocked up*, but the *coagulum* seemed to be recent. The calibre of the left was not diminished, and there was no coagulum of any sort in it. The left anterior cerebral artery, soon after its commencement, was swollen into a node the size of a large pea. Both vertebral arteries were thickened and nodose externally; the channel of the left one was narrowed at one point, and here the artery was fastened to the medulla oblongata by a sort of stuff which looked like dirty putty. The basilar artery was generally thickened, but it was not patchy. The posterior communicating arteries appeared to be healthy. As both posterior lobes of the cerebrum were a good deal softened, the *posterior cerebral arteries* were carefully examined, and each, soon after its origin, was found to have become suddenly nodose, and of about the size of a small horse-bean. The right was *firmly blocked up* near, and the other within half an inch of, its origin. The right corpus striatum was found to be much softened, but it was diffused only in a small part externally; and the convolutions on both sides of the Sylvian fissure were much softened. The posterior lobes of the cerebrum seemed to be about equally softened.

Dr. Hughlings Jackson remarks that he has but twice before seen the arteries of the brain in the condition described above, and that in both instances constitutional syphilis was present. Dr. Wilks has recorded a well-marked case in his valuable paper "On Syphilitic Affections of Internal Organs," Guy's Hospital Reports; and Dr. Bristowe has several times drawn attention to the plugging of arteries with thrombi in the brains of patients having constitutional syphilis, as stated. In the case just related there is, unfortunately, but little evidence as to the presence of syphilis; and the probability that the arterial disease was syphilitic rests mainly on the likeness which the morbid appearances presented by it bear to those which have been found in other cases where syphilis was undoubtedly present.

In the two cases which Dr. J. had seen before the one just related, the symptoms during life were mainly those due to *disorderly* paralysis of several cranial nerves. In one of them, however, death occurred about two days after an attack of hemiplegia. The autopsy showed that the paralysis was due to cerebral softening, which had been induced by the blocking up of a cerebral artery with blood-clot.

In another paper published in this Journal we have stated that primary acute arteritis is a very rare disease, although secondary arteritis of an acute character not unfrequently occurs. This statement, perhaps, requires some words of explanation, since we have related or referred to above a considerable number of cases in which the arterial tunics were primarily the seat of a more or less acute inflammation—some cases in which the inflammation was syphilitic, and others in which it was not syphilitic in origin. But in all these cases the inflammation was circumscribed or limited in extent, and scarcely anything more than subacute in character. Now, what is usually understood to be, and what others generally consider to be acute arteritis, is a *diffuse* inflammation of the arterial walls—a disease which is likely to be attended with great constitutional disturbance. I have never seen such an inflammation in any artery of the body. Moreover, Mr. Hodgson presents only one instance of it in his valuable *Treatise on the Diseases of Arteries and Veins*, etc., and even in that case the arteritis appears to have been consecutive or secondary to pleuro-pneumonia and pericarditis. (*Op. cit.*, pp. 5, 6.) He mentions, however, a case recorded by Portal in which the inflammation was more nearly primary. (*Cours d'Anatomie Médicale*, t. iii. p. 127.)

In this case a young man died a few days after the repulsion of an acute eruption. The thoracic aorta was very red, swollen, and tender, and its inner coat near the diaphragm was particularly puffed and softened.

The disease in this case was that which is usually denominated arteritis; and this form of it is unquestionably very rare.

Again, strictly speaking, we must consider that atheroma, calcification, and semi-cartilaginous patches are consequences of an inflammatory dis-

order of the internal and middle coats of arteries; but this inflammation is exceedingly obscure and chronic in character, and does not correspond at all to that which is called arteritis. Now, while primary acute arteritis is a very rare disease, the chronic inflammation of arteries which constitutes the incipient stage of atheroma, calcification, etc., is one of the most frequent of all diseases. It is not unfrequently described as *endarteritis deformis*.

Again, there is a *fourth* variety of thrombosis of the cerebral arteries, which in this place claims our attention, namely, *traumatic* thrombosis, or the kind of thrombosis that results from mechanical injury of the internal and middle coats of any artery which supplies the brain with blood.

M. VERNEUIL has recently (*Am. Journ. Med. Sciences*, April, 1872, pp. 548, 549) communicated to the French Academy of Medicine a highly interesting case in point, wherein the left internal carotid, and left middle cerebral, with all its branches, became thrombosed in consequence of the laceration of the inner tunics of the carotid. The following is a brief *résumé* of it:—

A man, aged 45, was injured by the overturning of a railway wagon. He exhibited much agitation, disordered movements, loud cries, and signs of violent pain. In the evening he was seized with violent delirium, followed in a few hours by profound coma and complete hemiplegia of the right side. Towards the fifth day he died. At the autopsy the left internal carotid, within the cranium, was found to be filled with a thrombus which extended into the middle cerebral artery and all its branches. On tracing the carotid downwards it was found to be distended with a reddish, friable coagula, until within a finger's breadth of its origin. From the base of the skull to this point it was at least one-third larger than natural, but there it suddenly diminished in size. On opening it at this spot, the inner tunics were found cleanly cut across and pushed back by the blood-stream, so as to produce valvular folds, the free edges of which were turned towards the axis of the vessel. At this point the coagulated blood completely obliterated the calibre of the artery, and the occluding coagula extended upwards, as mentioned above. There was no external wound. The left hemisphere of the cerebrum was extensively softened.

It is probable that the accident was attended with a forcible twisting movement of the patient's neck, which lacerated the more brittle and least extensible of the tunics belonging to the internal carotid artery. Then the torn edges of these coats quickly induced thrombosis of the carotid. But a collateral circulation was readily established through the circle of Willis, and therefore the primary symptoms of obstruction of the cerebral circulation ere long passed away. Afterwards, however, the middle cerebral artery and its branches became blocked up with coagula from an extension of the clotting process; and in this way arose the delirium, the hemiplegia, the coma, and the cerebral softening.

Concerning a *fifth* variety of thrombosis of the cerebral arteries. As in the arteries of the lower extremities, so in the arteries of the brain also, thrombosis is not unfrequently induced by the lodgment of embolia which have been carried thither in the blood-stream from the heart or some other distant part. Such thromboses are consecutive to embolism, and therefore

may with propriety be called *secondary*. But secondary thrombosis of the cerebral arteries is a subject which possesses a good deal of importance, for oftentimes cerebral embolism would not be attended with any bad consequences of a permanent nature if it did not induce a secondary coagulation of blood in the embolized artery, and thus render the occlusion more extensive and complete. In other words, people when attacked with cerebral embolism would not unfrequently make good recoveries were it not for the occurrence of secondary thrombosis.

Dr. Troussseau has related (*Lectures on Clin. Med.*, vol iii. pp. 417-18, New Syd. Soc. Trans.) a very striking case in which embolism of the left middle cerebral artery was followed by extensive thrombosis of that artery and its branches. The following is an outline of it:—

A recently delivered woman became hemiplegic on the right side, but without immediate loss of consciousness. Soon afterwards, however, coma set in. The pulse was frequent and irregular, and the physical signs of mitral disease of the heart were also present. Troussseau diagnosed the case as one of embolism of the middle cerebral artery of the left side, and consecutive softening of the corresponding part of the left hemisphere. Eight days after admission to the hospital she died. The *autopsy* fully confirmed this diagnosis. A portion of brain-substance in front of the left corpus striatum was softened. The middle cerebral artery on the same side was plugged up to the extent of two millimetres by a small fibrinous clot, which was yellow, resistant, and not adherent to the walls of the vessel. All around this little fibrinous plug, however, there was coagulated blood (thrombus) which, on the distal side, extended far into the ramifications of the artery, and, on the proximal side, terminated abruptly at its origin from the internal carotid. The little central clot which originally plugged the artery was like a millet seed. The walls of the artery did not exhibit any lesion. There was also a fibrinous clot of the size of a millet seed, at the bifurcation of the left common carotid artery, which sent three filiform prolongations—cruoric and fibrinous—one into the common carotid itself, another into the internal carotid, and the third into the middle thyroid. Furthermore, the mitral valve was the seat of conspicuous lesions. On the auricular surface of that valve were warty looking clots of various sizes, some adherent to the endocardium, and others so free as to be almost unattached.

It should also be stated that the other arteries of the brain were examined with care, and presented no coagula or thrombi; that the brain-substance was normal in colour and consistence everywhere, excepting the softened part, and that the small, yellow, central, fibrinous plug found in the left middle cerebral artery was similar in form and identical in structure with the concretions on the mitral valve of the heart. This little yellow central clot was doubtless an embolium which had migrated from the mitral valve, and, on becoming lodged in the middle cerebral artery of the left side, had caused that artery and its branches to become extensively thrombosed. As the subject was a puerperal woman, the preternatural coagulability of blood which belongs to the puerperal state had no doubt also played an important part in the production of this thrombosis. The causes of the thrombosis in this case, therefore, appear to have been two, namely, the lodgment of an embolus with the retardation or arrest of blood-flow that resulted therefrom, and the abnormal coagulability of the blood itself that attended the puerperal condition of the patient.

Dr. Abercrombie has recorded (*Diseases of the Brain*, pp. 89-91) a case in which embolism of the basilar artery, or its terminal branches, the result of an attack of pleurisy, induced secondary thrombosis of the basilar. Hemiplegia of the left side, with apoplectiform symptoms appeared, and about three months afterwards death occurred. At the *autopsy*, the

right hemisphere of the cerebrum was found to be extensively softened, in consequence of the basilar and corresponding posterior cerebral artery being plugged up with thrombi that probably were secondary in character, and induced by the lodgment of embolia. The right pleural cavity contained the products of an inflammation of a date coeval with the patient's sickness. He was a young man, aged 18, and had been ill some considerable time before the cerebral symptoms made their appearance.

CASE VII.—A coachman, aged 39 (*Lancet*, July 27, 1861, pp. 87, 88), suddenly fell down in a fit, unconscious, and foaming at the mouth; never had a fit before; there was total loss of both sensibility and motility on right side of body; he vomited frequently, and passed his motions unconsciously; seventeen and a half hours after attack he had another fit; his breathing became stertorous, and in an hour and a half more he died. On removing skulcap, the right hemisphere of the cerebrum appeared fuller than the left; its convolutions were flattened, and its surface pale, as if its vessels had been emptied by pressure. The right lateral ventricle was found distended by a large quantity of clear fluid. The left hemisphere was of natural consistence and vascularity. The left lateral ventricle was empty. When the base of the skull was reached, it was found that the left internal carotid artery was full and round. This was owing to a coherent blackish coagulum which filled the vessel from within the middle lacerated foramen to its termination. The clot further extended into the ophthalmic, and into the whole length of the anterior and middle cerebral arteries, as well as their branches. The internal carotid was examined outside the skull, and found empty and natural. Nothing unusual was observed in the vessels themselves. The pericardium contained a small quantity of fluid. The heart was flabby and weak. There was a slight amount of thickening about both the mitral and aortic valves, but not enough to interfere with their action. There were some firm pleuritic adhesions at the back part of the left lung, and at the apex was a patch of pulmonary extravasation; the lung was generally congested. The right lung was also congested, and surrounded with pleural adhesions of on old date. The liver, kidneys, and spleen were healthy. The blood was unusually fluid, excepting the coagula above described.

In this remarkable case the seizure was sudden, the symptoms those of epilepsy, with hemiplegia of the right side, followed by coma, and the result fatal in nineteen hours. The autopsy revealed the presence of a large quantity of serum in the right, but not in the left, lateral ventricle of the brain. The left internal carotid artery within the cranium, the ophthalmic, the anterior and middle cerebral arteries, as well as their branches, were filled with a firm, black coagulum. Here, then, the cause of the hemiplegia was explained; by the sudden occlusion of these arteries of the cerebrum with clotted blood, the left hemisphere was deprived of its supply of blood to such an extent as not only to arrest its functions, but actually to destroy life.

With regard to the effusion of serum in the ventricles that was found at the autopsy, we should remark that the hemiplegia could not have been induced by it, because the paralysis occurred on the same side of the body as the effusion in the brain. Moreover, it could have been induced by the thrombosis which occurred so extensively in the arteries that supply the left hemisphere of the brain with blood, for the paralysis presented itself on the right or opposite side of the body; and, in all probability, it was

the anæmic condition of the ganglion-cells and nerve-filaments of the left hemisphere which resulted from the occlusion of its chief arteries with thrombi, that suspended the functions of the left hemisphere of the cerebrum, and thus directly occasioned the hemiplegia of the opposite side of the body. An apparent exception to this explanation, however, presented itself in the circumstance that there was slight ptosis of the left eyelid. But this symptom was probably due to the state of the orbit itself, for it was found at the autopsy that the thrombosis extended into the left ophthalmic artery.

What caused the blood to coagulate in the cerebral arteries in this case? Was the thrombosis of a secondary nature, and induced by the lodgment of an embolus in the left internal carotid artery? In support of this view, however, there was only one fact observed, namely, the weak and flabby state of the heart, united with some old thickening of the mitral and aortic valves. From this condition of the heart the formation of a cardiac thrombus may have resulted, which migrated to the left internal carotid artery; and the writer strongly suspects that this view is the correct one.

Furthermore, a close relationship is sometimes observed to subsist between the occurrence of a "fit" of *epilepsy* or *eclampsia* and thrombosis of the cerebral arteries, as, for example, in the following instance:—

CASE VIII.—Dr. W. H. Dickinson records (*St. George's Hospital Reports*, 1866, pp. 260, 261) the case of a soldier aged 36, who had tramped from Leeds up to London and when near his journey's end was seized with a fit and brought to the hospital in an insensible state. He recovered consciousness, but rigidity and partial paralysis of the muscles on the left side, with dysphagia and inability to speak remained. He sank and died on the third day after the attack.

It appears, then, that this man while overcome with fatigue from journeying far on foot, was seized with a "fit" and carried to St. George's Hospital in a state of insensibility, where he died three days afterwards, having meanwhile been restored to consciousness for a time, although he exhibited several signs of serious brain-disease, such as inability to speak and protrude the tongue, difficulty in swallowing, and partial palsy with rigidity of the muscles of his left arm. Examined *post-mortem* the substance of the brain was found to be much congested, and all the long arteries with many of the smaller ones belonging to it were more or less completely filled with coagula (thrombi), while their coats were free from disease, and the heart was natural. The thrombosis was clearly primary in character. It was also much more extensive than that found in any other case of thrombosis of the cerebral arteries which we have perused, for it involved both carotids, both vertebrals, the basilar, the posterior and middle cerebrals of both sides, and many smaller arteries. This case is out of the general run, and therefore is worthy of particular attention.

Were the sinuses of the dura mater also filled up with thrombi? If they were so occupied during life it would account for some of the symptoms which were present, and for the cerebral congestion which was re-

vealed by the autopsy ; but the record is silent on this point, and it is therefore fair to infer that thrombosis of the cerebral sinuses was not present.

What, then, was the cause of the strongly marked congestion of the brain-substance which was revealed by the autopsy of this patient ?

The occlusion of the cerebral arteries with thrombi would produce just the opposite condition, namely, a state of cerebral anæmia. This cerebral hyperæmia was probably passive in character and due to some morbid state of the cerebral bloodvessels themselves, such, for example, as vaso-motor paralysis of their walls, which may have been induced by the fit of epilepsy or eclampsia. The paralyzed bloodvessels would naturally become expanded or dilated in consequence of the intra-vascular pressure sustained by them in common with the other arteries, and thus the blood would tend to stagnate more or less in them. Admitting such to have been the case, it is not difficult to conceive the way in which the arteries of this man's brain became so extensively thrombosed. The coagulation probably began in the arterial capillaries where the heart's influence on the blood stream soonest ceased to be felt, and where the stagnation first occurred. From the small arteries the coagulating process extended itself to those which were still larger, and so on, as the stagnation spread, until the obstructed condition of many arteries above described was produced. In explaining why the cerebral arteries became thrombosed in this manner while the sinuses of the dura mater escaped, we should bear in mind that arterial blood is much more coagulable than venous.

It is also possible that in the case related before this (No. VII.) the thrombosis was not due to embolism at all, but to the fit of epilepsy or eclampsia which that man is reported to have had, and that it was produced in a similar way to that just described.

Again, a highly important feature in the production of thrombosis of the cerebral arteries in the case just related undoubtedly was an abnormal tendency on the part of the blood itself to coagulate. If this man's blood had not been in some morbid state which imparted to its fibrin an unusual inclination to solidify, it is probable that the thrombosis would not have occurred. Thus the predisposing cause of the thrombosis in this case appears to have been the abnormal coagulability of the blood, and the exciting cause the vaso-motor paralysis of the cerebral bloodvessels which followed the "fit" of epilepsy or eclampsia.

In the following instance the exciting cause of the thrombosis may also have been vaso-motor paralysis of certain of the cerebral arteries, the result of alcoholic intemperance :—

CASE IX.—Dr. W. H. Dickinson records (*Ibid.*, pp. 261, 262) the case of a woman, aged 26, in the habit of using beer and gin to excess, who after drinking very freely for a fortnight was seized with giddiness, followed in four days by loss of speech and a feeling of pins and needles sticking in the right arm, but without loss of consciousness. Later still hemiplegia of the right side came on ; nocturnal delirium, coma and death eight days after the first symptom ap-

peared. Body temperature in axilla from  $103^{\circ}$  to  $103.4^{\circ}$ , the latter on right side. On *autopsy* the dura mater was found vascular and adherent to a rough patch on the occipital bone; convolutions somewhat flatter than usual; pia mater and brain-substance generally injected; in the white matter a doubtful loss of consistence; drops of water, however, made no impression. A firm buff-coloured coagulum obstructed and distended the basilar artery throughout, and the adjoining quarter of an inch of the right vertebral. It was about one and a half inches long, hard, somewhat adherent, and more perfectly decolourized on its exterior than in the centre. There was no trace of atheroma or any other change in the coats of the arteries. The heart was rather large, with an old milk spot on the pericardium. The mitral valve was thickened, tough, and leathery. The aortic valves were slightly affected by the same fibrous thickening, but not enough to impair their action. All the other organs were essentially natural. There were no fibrinous deposits in the heart, or anywhere else, to suggest that embolism of the basilar artery had occurred. Moreover, the plug found in the basilar was so large that it could not by any possibility have entered that artery through either of the vertebrals. It therefore must have been formed from the blood itself in that artery.

The thrombosis was not nearly so extensive, and the symptoms were nothing like so strongly marked in this case as they were in Case No. VIII. Still these cases have many points in common in their symptomatology, and as to their etiology they probably belong to the same category. The predisposing cause of the thrombosis in this case was doubtless an abnormal tendency to coagulate which the blood itself had acquired in consequence of the intemperate habits of the patient, and the exciting cause was probably vaso-motor paralysis of the basilar and vertebral arteries, which also was due to chronic alcoholism. Thrombosis of the cerebral arteries must therefore be reckoned among the occasional consequences or terminations of chronic alcoholism.

CASE X.—Dr. Ogle has observed (*Lancet*, Feb. 29, 1868, p. 287) the case of a plumber, aged 52, with a blue gum line and most offensive foxy or mouse-like odour of body, also stupid and half idiotic in mind, and remarkably slow in speech, who had a "fit" which left him insensible and completely hemiplegic on the right side. Seven days later he died. On *autopsy* nearly the whole of the centre of the left cerebral hemisphere was found to be broken down and softened, and the left internal carotid artery, just before its bifurcation, was blocked up by a fibrinous plug, very adherent to the walls of the vessel. This plug was perforated or tunnelled by an opening which easily allowed the passage of a bristle. The auricular surface of the mitral valve of the heart was beset by old firm adherent fibrinous deposits, as were also the chordæ tendineæ of the left ventricle to some extent. The kidneys were in an early stage of granular degeneration.

Was this a case of marasmic thrombosis of the internal carotid artery? The clinical history is more nearly that of cerebral thrombosis than that of cerebral embolism. The head symptoms came on gradually and not with the suddenness which characterizes the lodgment of an embolium in one of the principal arteries of the brain. The patient was in a heavy, stupid, and half-imbecile state, with remarkable slowness of speech when he got a "fit" and became insensible. He also appears to have been in a state of advanced marasmus the result of lead poisoning, the consequences of which would be weakened heart-action and increased tendency on the part of the blood to coagulate, or, in other words, he had

acquired by reason of marasmus a strong tendency to the occurrence of thrombosis in the cerebral arteries. It is not improbable that the lethargy, imbecility, and slowness of speech had been induced by a gradually increasing thrombus, and that the occurrence of a fit rendered the occlusion complete. The tunnelled condition of the plug and the firmness with which it adhered to the arterial wall are worthy of note, and seem to indicate that it was much older than seven days, and was the result of thrombosis rather than embolism.

It may be well to briefly enumerate, in this place, the clinical forms or varieties of thrombosis of the cerebral arteries which the cases related above present. They are the following: 1. The *senile*, so called because it is met with only in the aged, or those who are prematurely old. 2. The *inflammatory*, wherein the thrombus results from an arteritis which is more or less acute and circumscribed in character. 3. The *syphilitic*, which is generally connected with syphilitic disease of the arterial walls themselves, as well as syphilitic deterioration of the blood. 4. The *traumatic*, or that which is induced by traumatic lesion of the inner and middle coat of such arteries as the internal carotid. 5. The *secondary*, or that which is occasioned by the lodgment of embolia in the cerebral arteries. 6. The *puerperal*, or that which is met with in lying-in women. 7. The *epileptic* or *eclampsic*, which appears to occur as a consequence of epileptiform and eclampsic seizures. 8. The *alcoholic*, or that which presents itself in the intemperate, as a consequence of chronic alcoholism. To the foregoing clinically distinct varieties of thrombosis of the cerebral arteries the *marasmic* should be added. It occurs in subjects who are much run down, and whose condition is that which is commonly called atrophic or marasmic. In it the formation of thrombus appears to be due to disease of the blood in the shape of preternatural coagulability, on the one hand, and feeble heart-action on the other.

*Etiology.*—1. Old age induces thrombosis of the cerebral arteries, by means of the changes in the organism with which it is attended. They are: 1, atheromatous degeneration of the cerebral arteries; 2, enfeeblement of the heart's action; 3, increased coagulability of the blood itself. Atheroma, when it involves the cerebral arteries, usually stiffens the walls, contracts the calibre, and roughens the inner surface of these vessels. The last-named change, especially, disposes to the fixation of blood-clot. Thus, in Cases I. and II., it was found that the fibrin which constituted the thrombus was deposited upon the roughened inner coat of the middle cerebral artery, that vessel being very atheromatous at the spot.

But does thrombosis ever commence in the *minute* arteries of the brain in old people, as we have elsewhere shown that it not unfrequently does in the minute arteries of the extremities in the aged? There does not, indeed, appear to be any good reason why thrombosis should not some-

times have its starting-point in the cerebral capillaries, as well as in the capillaries of the extremities in aged persons.

Dr. Lancereaux has reported (*De la Thrombose et de l'Embole Cérébrales*, pp. 82, 83) the following case of senile thrombosis of the left arteria cerebri media and anterior choroid, in which it is not improbable that the coagulating process began in some of the minute terminal branches of the middle cerebral artery, as well as in those of the anterior choroid, and gradually extended itself from the smaller to the larger branches, in a direction towards the heart, until it gained the trunk of the middle cerebral artery, and plugged it up completely.

J. A., aged 75, was admitted into the infirmary of the Hospice des Incurables at Paris, in January, 1858, for a partial blindness, of which he was considerably relieved, when, on the morning of the 10th of March following, he suddenly lost the power of speech. His face became dull and stupid, the angle of the mouth drawn towards the left side, the muscles of the right being paralyzed; and he was unable to protrude the tongue. Towards evening paralysis of the tongue crept on, but without any loss of sensation; and thus the patient continued until he died at midnight on the 12th.

On *autopsy*, the left arteria cerebri media and its branches, together with the anterior choroid artery, were found considerably diminished in calibre, in consequence of atheromatous and bony deposits in their walls; and they were rendered perfectly impervious by yellow fibrinous clots in their interior. The hippocampus major (cornu ammonis) was reduced to a semi-fluid consistence, and the substance of the middle lobe in the immediate neighbourhood was also softened. The coats of the corresponding arteries on the right side were slightly thickened, but all the other parts of the brain were healthy.

It is probable that thrombosis attacks the minute arteries of the brain in aged persons, and those who are prematurely old, much more frequently than is generally supposed. Such a thrombosis is usually more or less marasmic in its nature, and is closely analogous in its development to that marasmic thrombosis which, as we showed in an article published in the issue of this Journal for January, 1873, not unfrequently attacks the minute arteries of the lower extremities, and occasions that variety of senile gangrene which commences in one or more small spots on the toes or feet, and gradually spreads over the surrounding parts, *pari passu*, as the thrombus extends itself in the corresponding arteries.

Again, in persons past the middle period of life who have indulged much in luxury and ease, whose cerebral arteries are also atheromatous, the tendency to the occurrence of thrombosis in these arteries may be much increased by the fatty and weak condition of the heart, which is apt to result from luxurious living and insufficient exercise. In Dr. Packard's case, related above, the formation of the thrombus was assisted by weakened heart-action, the result of fatigue, and by the occurrence of diarrhœa. The latter weakened the action of the heart still more. It also increased the coagulability of the blood itself, by suddenly diminishing the volume, and increasing the thickness of the circulating fluids, from the withdrawal of their watery and saline ingredients. Furthermore, in this case the basilar artery was not only atheromatous, but aneurismally dilated also,

and this circumstance obviously favoured the occurrence of stasis and coagulation of the blood in that vessel.

2. When thrombosis of the cerebral arteries occurs as a consequence of *inflammation* of their walls, it is usually met with in subjects who are comparatively young. Of the three patients belonging to this category whose histories are related above, one was 29, another 33, and the last 52 years of age. Local or circumscribed arteritis tends to produce thrombosis, *first*, by causing tumefaction of the arterial coats and contraction of the arterial calibre; *second*, by bursting through or lacerating the inner arterial coat in consequence of the tumefaction, as happened in M. Hayem's cases, so that the blood may become entangled in the torn edges of the internal coat; and *third*, by discharging wandering leucocytes in considerable quantity or numbers into the blood. We know from the investigations of Von Recklinghausen and Bubnoff that these cells can readily pass through the coats of bloodvessels, and we also know from the researches of Alex. Schmidt and Prof. Montegazza, that these cells are capable of imparting a strong tendency to coagulate to the blood with which they are commingled (*New Sydenham Soc. Year-Book*, 1862, pp. 20-22). It has been observed of this variety of cerebral thrombosis, that the seizure usually occurs with the suddenness of an apoplectic stroke. From this circumstance, we infer that the clot which plugs up the artery—the thrombus—is not slow but very rapid in its formation. It is highly probable that this extreme rapidity of formation, on the part of the coagulum, is mainly due to the entrance into the blood, at the inflamed spot, of wandering leucocytes, which have been developed by the inflammatory process, in the arterial coats.

3. In another important class of cases, the *syphilitic* diathesis plays a very conspicuous part in the production of thrombosis of the cerebral arteries. Constitutional syphilis induces the formation of coagula in the cerebral arteries, in two ways, which are quite distinct. They are the following: 1. The syphilitic diathesis may cause the composition of the blood to be altered, in such a manner, that its coagulability is greatly increased. 2. The syphilitic dyscrasia sometimes occasions deposits in, or thickening of, the arterial coats in the nature of gummy swelling, whereby the arterial calibre is much encroached upon and narrowed. Now and then the swelling of the arterial walls, in these cases, presents itself in the form of nodes, as it did in Dr. Hughlings Jackson's case, above related.

4. In cases where *traumatic* thrombosis of the cerebral arteries occurs, the coagulation results from the mechanical injury, which the internal and middle coats of the affected artery have sustained. In such cases these arterial tunics are usually found to be more or less extensively cut or torn across, and pushed back by the blood-stream, so as to constitute valvular folds, the free edges of which are turned towards the axis of the injured artery. The blood in contact with the torn edges of these folds readily

coagulates, and thus the injured vessel speedily becomes occluded with a thrombus.

5. With regard to the so-called *secondary* thrombosis of the cerebral arteries, and its etiology, we may state, that the first step in the morbid process consists in the lodgment of an embolium, which has been brought in the blood-stream from some distant part, usually either the left chambers of the heart or the pulmonary veins. Oftentimes the embolium only partially fills the calibre of the artery, where it chances to lodge. It then may act as a foreign body, and cause the blood to coagulate around and beyond it; and the coagula may extend far into the ramifications of the affected artery, as they did in Dr. Troussseau's case, which we have related above. If the disease which furnishes the embolium be one which weakens much the heart's action, while at the same time it increases the coagulability of the blood, as chronic pleurisy, pneumonia, and phthisis pulmonalis are known to do, the lodgment of an embolium will pretty certainly be followed by secondary thrombosis. It is for this reason that cerebral embolism, for the most part, proves speedily fatal, when it occurs in the course of the above-mentioned diseases.

6. When thrombosis of the cerebral arteries occurs in puerperal women, it may be secondary in character, as it was in Troussseau's case, but, whether secondary or not, the greatly increased coagulability of the blood itself, which belongs to the puerperal period, plays a very important part in its production. We may here remark, that puerperal hemiplegia is not unfrequently produced by thrombosis of some cerebral artery, as well as by embolism of such an artery, and that puerperal ophthalmia is likewise occasioned by thrombosis of the ophthalmic artery or some of its ocular branches, as well as by embolism of this artery.

7. We must explain the *modus operandi*, by which a fit of epilepsy or eclampsia occasions thrombosis of the cerebral arteries. For this accident to happen, under such circumstances, there must be a greatly increased tendency on the part of the blood itself to coagulate. This would constitute the predisposing cause. The stagnation of blood in the cerebral vessels, which not unfrequently attends epileptic and eclampsic seizures, would constitute the exciting cause of the coagulation. A paroxysm of epilepsy or eclampsia may, therefore, determine the occurrence of thrombosis of the cerebral arteries, in a subject who is already predisposed to its occurrence from increased coagulability of the blood itself, and from disease of the arterial walls, whether it be organic or vaso-motor in character.

8. Old topers are liable to be carried off by thrombosis of the cerebral arteries, because their habit of drinking to excess increases the coagulability of the blood, and, at the same time, renders the cerebral bloodvessels liable to the occurrence of vaso-motor paralysis with dilatation of their calibre and stagnation of their contents—a circumstance which strongly favours the formation of blood-clot. Alecoholic intemperance also tends

strongly to induce endarteritis deformans or atheromatous degeneration of the coats of the arteries, together with fatty thickening of the walls of the capillaries. Thrombosis of the cerebral arteries must, therefore, be looked upon as an occasional consequence of chronic alcoholism.

With regard to the etiology of *marasmic* thrombosis of the cerebral arteries, only a few words remain to be said. This variety of arterial thrombosis has its origin in the abnormal coagulability of the blood itself, which belongs to the marasmic state, together with the weakened action of the heart, which also belongs to this state, as mentioned above.

Finally, we remark that the causation of thrombosis of the cerebral arteries is usually a complex affair in which several of the factors mentioned above generally take part.

*Anatomical Appearances or Changes.*—These relate to the walls of the affected artery, to the thrombus itself, and to the brain-substance which derives its blood-supply from the thrombosed artery.

The anatomical lesions which the coats of the thrombosed artery have been found to present, are, 1, atheromatous and calcareous degeneration whereby they become more or less thickened and stiffened, their inner surface roughened, and their calibre contracted; 2, thickening with diminution of calibre due to local or circumscribed arteritis; 3, thickening with diminution of calibre due to constitutional syphilis, and 4, laceration and displacement of the internal and middle tunics, the result of mechanical injury. Of these lesions atheroma and calcification are much the most often met with. The others are comparatively rare. But, it should also be stated, that not unfrequently the arterial walls are found to be entirely free from structural change, in cases of thrombosis of the cerebral arteries; and this generally obtains in cases where the thrombosis is secondary to embolism, on the one hand, or has been induced by epileptic or eclampsic fits and alcoholic intemperance, on the other. Finally, in cases where the patient survives the attack some considerable time, the walls of the thrombosed artery may become the seat of a secondary inflammation, that is, of an arteritis that is induced by the clot acting on these walls as a foreign body.

The thrombus is usually found to completely close the arterial canal. Sometimes, however, the occlusion is incomplete. This may be due to the fact that the clot did not originally attain sufficient size to fill up the arterial calibre; or, again, in cases where life has been prolonged for some considerable time, and the coagulum has attained considerable age, it may become contracted and shrunken, or "canalized" and "tunneled," as it is sometimes called. The thrombus varies in appearance, in different cases, according to its age, the rapidity with which it has been formed, the size of the affected artery, and the condition of its coats. It may consist of dark-red blood-clot, on the one hand, or of yellowish-white fibrin that has been freed from red corpuscles, on the other. Its colour may range through

every shade from dark-brown or jet-black to opaque-white. Clots that are of recent and sudden formation, usually have a reddish-brown or almost black colour. In Case No. VII. death occurred in nineteen hours, and the coagulum was found to be blackish and coherent. In Case No. VIII. death occurred on the third day, and the clot was black and soft like currant jelly. In a case where thrombosis was induced by traumatic lesion of the inner and middle coats of the internal carotid artery, and death occurred on the fifth day, the coagulum was reddish and friable. With the lapse of time, however, the red corpuscles disappear, and the clot grows pale. In Case No. V. there were two thrombi. One of them was six weeks old, and quite pale in colour; the other five days old, and dark in appearance. Sometimes, the coagulum becomes decolourized with great rapidity. In Case No. IX. death occurred eight days after the attack, and the clot was found to be much decolourized, more perfectly, however, on its exterior than in the centre. This clot was about an inch and a half long, hard, and somewhat adherent to the lining membrane of the vessel. Occasionally, when death occurs, some considerable time after the attack, the thrombosed artery and its branches are found to be obliterated by fibrous cords which adhere to the vascular wall, as was observed in one of Bristowe's cases, related above. Again, in numerous instances the thrombosis, from the outset, appears to consist only of fibrin, which has been gradually deposited upon the roughened lining of an atheromatous cerebral artery. Thus, in Cases I. and II., the thrombus consisted of a firm clot of pale-coloured fibrin, which had coagulated on the roughened inner coat of the middle cerebral artery, that artery being very atheromatous, at this point. In cases of secondary thrombosis, the coagulum not unfrequently extends far into the ramifications of the artery, on the distal side of the embolium, and, up to the next branch of importance, on the proximal side, as, for example, it did in Troussseau's case, related above. When the patient survives the attack some considerable time, the thrombus may undergo changes other than the decolourization and organization, which are mentioned above. It may become infiltrated with calcareous salts. Thus, in Case No. III., it was found that "the clot in the basilar artery contained irregular masses of phosphate of lime, which at one point were so closely aggregated together as in themselves completely to block up the vessel." Finally, the thrombus may undergo puriform softening, in precisely the same way as we have elsewhere shown that coagula may undergo spontaneous liquefaction, in the peripheral veins.

*The anatomical changes* in the brain-substance, which result from thrombosis of the cerebral arteries, are those which want of nutrient blood, or extreme anæmia, immediately induces. These changes are an exsanguinated appearance, and a diminished consistence, or softening. But we do not always find that the portion of brain-substance which derives its blood-supply from the obstructed artery, presents such an exsanguinated

appearance, even in cases where death has occurred in a few hours or days after the attack, as *à priori* we might expect to find. Thus, in Case No. VII., where the patient died nineteen hours after the attack, the left or thrombosed hemisphere of the cerebrum was found to be natural in vascularity and consistence; and in Case No. VIII., where death occurred on the third day, the brain was much congested, and the white substance, when cut, quickly became bedewed with blood. It is not improbable that this congestion and want of exsanguination had its origin in vaso-motor paralysis and dilatation of the cerebral bloodvessels—a condition of these vessels which preceded the thrombosis and determined its occurrence. In many cases, however, the portion of brain-substance which depends upon the obstructed artery for its nutrient blood, presents an anæmic appearance from the outset.

The softening of the brain-substance, which results from occlusion of the cerebral arteries with thrombi, is a necrosis which is strictly analogous to the gangrene of the extremities which is produced by thrombosis of the arteries belonging thereto, and which we have elsewhere described. The softening brain, however, does not exhale a gangrenous odour, because it is shielded from atmospheric action by the dense walls of the cranium. How soon after the occurrence of thrombosis does cerebral softening appear? The length of time doubtless depends upon the extent and completeness of the arterial occlusion, and upon the quantity of blood which gets into the affected part of the brain through the collateral channels. If the thrombus plugs up the artery completely, and if no blood whatever is received through the collateral channels, the softening becomes well marked in two or three days. For example, in one of Lancereaux's cases, death occurred two and a half days after the attack. Post-mortem examination showed that the left hippocampus major was reduced to a semi-fluid consistence, and that the substance of the middle lobe in the immediate neighbourhood was also softened. The left arteria cerebri media and its branches, together with the anterior choroid artery, were found considerably diminished in calibre, in consequence of atheromatous and bony deposits in their walls; and they were rendered perfectly impervious by yellow fibrinous clots in their interior. In M. Verneuil's case, the patient died on the fifth day after the accident, and the left cerebral hemisphere was found extensively softened, in consequence of the middle cerebral artery being completely occluded with thrombus. In Case No. III. death occurred four days after the attack. The centre of the pons Varolii was found softened and of a pulpy consistence. On washing away the softened part by a thin stream of water a cavity was produced about the size of a hazel-nut. The basilar artery was completely plugged up with a thrombus. In Case No. IX., however, the cerebral substance was softened but little, if at all, although the symptoms had lasted eight days. In this case, too, the basilar artery was the seat of the

thrombus; but it is probable that the anaemic part of the brain received a good deal of blood through the collateral channels, such as the circle of Willis, not enough, however, to rescue the patient from death, although the quantity was sufficient to notably retard the occurrence of softening.

The necrosed portions of brain-substance, in cases of thrombosis of the cerebral arteries, vary in size from that of a bean to a goose's egg, and upwards. For example, in Case III. the softened spot was about the size of a hazel-nut; in Case II. it was two inches in circumference. In Dr. Packard's case, it was as large as an egg. In Dr. Hughlings Jackson's case, the corpus striatum was much softened, but it was diffused only in a small part externally. In one of Dr. Bristowe's cases, the middle lobe of the right hemisphere of the cerebrum was softened throughout. In Case No. X. nearly the whole of the centre of the left cerebral hemisphere was softened and broken down. The usual seat of the necrosis is the cerebral hemispheres, especially their medullary substance. In only one of the cases related above did it involve another part of the brain, namely, the pons Varolii. The softening varies considerably in degree in different cases. In the highest grades the cerebral substance is found changed to a moist gelatinous trembling pulp at the point of necrosis. The softened part of the brain also varies considerably in colour in different cases. In some instances it has a white or grayish-white hue. In Cases I. and II. it was white; in other instances the colour of the necrosed spot is yellowish; and "yellow" softening of the brain is sometimes designated as "simple" softening. In occasional instances the colour is brownish. In Case No. V. the left corpus striatum was softened and darker in colour than usual. The brown and yellow colours of the necrosed part are due to the fact that the disintegrated brain-substance is infiltrated with escaped and altered colouring matter of the blood.

After the disease had lasted some time, we find the affected part changed to a cellular network filled with a chalky or milky fluid (*Durand-Fardel's* infiltration celluleuse). On examining necrosed portions of brain with the microscope, we usually find only remains of nerve-filaments, granular cells, which correspond to the ganglion-cells or neurologia-nuclei that have undergone fatty degeneration, colouring matter, and masses of detritus (*Niemeyer*). In Case III. the softened part of the pons Varolii was entirely composed of the disintegrated tubular and vesicular structure of this portion of the encephalon. There were no granule-cells or granular masses, such as are found in softening from an exudation. But the nerve-cells contained an unusual number of minute brownish granules, and floated about isolated in the softened substance. They contained an unusual number of small fatty molecules, forming masses of various sizes, so as to constitute a partial mould of their interior. Many of these masses were naked, and swam about in the liquid, but were easily recognized by their shape, to have originally been formed in the interior of the cells.

*Symptoms and Course.*—The symptoms produced by thrombosis of the cerebral arteries consist, for the most part, of cerebral disturbances in the shape of important modifications or complete arrest of the functions of the part of the brain which happens to be deprived of nutrient blood, or necrosed, in consequence of the arterial obstruction. They consist of vertigo, headache, tinnitus aurium, impairment of sight, thickness and loss of speech, inability to protrude the tongue, dysphagia, facial palsy, pricking and numbness in the extremities, hemiplegia which may be either partial or complete, apathy, somnolency, lethargy, with or without delirium, loss of consciousness, general paralysis, coma, carus, and death. If the cerebral anæmia that follows the thrombosis shall chance to be seasonably relieved by the establishment of a collateral circulation, then the paralysis and other signs of cerebral disturbance will soon pass away. But if, on the other hand, no compensatory blood supply is obtained through the collateral channels, the anæmic portion of brain-substance will rapidly pass into a state of softening or gangrene, the paralysis will gradually become more extensive and profound, until finally general paralysis, coma, and death will supervene.

In most cases, however, the symptoms come on more or less slowly, that is, they are gradually developed. For example, in Case No. III. the patient had long been subject to vertigo. Having sustained unusual fatigue of body and great anxiety of mind, on account of his sister's death, he was suddenly seized about 4 P. M. with a feeling of pricking and numbness in his left arm which commenced at the fingers. Shortly after, there occurred thickness of speech which rapidly increased. During the night he became speechless, but could make signs and appeared conscious. In the morning there was no sensibility in his left arm, and but little in his left leg. The arm was also remarkably rigid. He could not speak nor protrude the tongue, but was still conscious. The paralysis, however, extended rapidly and became general, and he died comatose on the fifth day after the attack. In Case No. IV. the symptoms at first were facial palsy, vertigo, tinnitus aurium, and impaired sight. Afterwards hemiplegia, coma, and carus came on, and death occurred six days after admission to hospital. In one of Dr. Bristowe's cases, the patient was suddenly seized with loss of power on one side, giddiness, etc. After a slight improvement he was again seized with unconsciousness and paralysis of the side opposite to that which was first affected. They were followed by coma and death. In another of Dr. Bristowe's cases, the patient had vertigo, cephalalgia, and epileptiform attacks; the movements of the left side were feeble, the sight of the left eye impaired, and there was some difficulty of speech. Later on coma and death supervened. In one of Lancereaux's cases, there were cephalalgia, insomnia, giddiness, weakness of memory, and loss of muscular power on the right side. Ultimately the phenomena of general paralysis appeared, and she sank and died about a year and a half after coming under

observation. In another of Lancereaux's cases, the patient suddenly lost the power of speech on the morning of the 10th. His face became dull and stupid, the angle of his mouth drawn towards the left side, and he was unable to protrude his tongue. Towards evening the symptoms of paralysis crept on, but without any loss of sensation, and thus the patient continued until he died, at midnight on the 12th. In M. Verneuil's traumatic case, the patient exhibited much agitation, disordered movements, loud cries, and signs of intense pain. In the evening he was seized with violent delirium, followed in a few hours by profound coma and complete hemiplegia of the right side, and he died on the fifth day.

In a good many instances the attack which proves fatal is preceded by warning symptoms in the shape of transient paralysis. For example, in Case No. I. the patient suddenly lost the use of her *right* arm and leg, but in a fortnight she was quite well again. Not long afterwards, however, she sustained complete loss of power in her *left* arm and leg, and partial in the left side of her face. This paralysis did not go away. At first she was conscious and could give an account of her attack, but she gradually passed into a comatose state, in which she remained until death occurred, about seven weeks after the last attack. The paralyzed side became very rigid soon after this attack, and continued so until the end. Again, in Dr. Packard's case, the patient was seized with paralysis of the left arm and leg, from which, however, he recovered so that four weeks afterwards he was able to go out again. Two weeks later still the paralysis returned. From this he never recovered, although he did not die until about nine months afterwards. Towards the end he had confusion of ideas and delirium. Besides transient paralysis there are several other warning symptoms of importance, such as headache, dizziness, ringing of the ears, impaired memory, apathy, and lethargy. In Case No. X. the patient was heavy, stupid, and half imbecile, with remarkable "slowness of speech" when roused, for some time before he got the fit attended with insensibility and hemiplegia, or the thrombosis, of which he died a week afterwards. Many authorities have explained this variation of symptoms, particularly the occurrence and disappearance of paralysis, as a peculiar symptom of softening of the brain. This is a false view of the matter. In cases where the symptoms have presented this variation, if softening of the brain be found on autopsy, the softening did not occur at the time the symptoms changed, but at a later period when they were constant. On the other hand, the occurrence and disappearance of circumscribed paralysis are certainly, to some extent, characteristic of anæmia of some part of the brain resulting from atheromatous degeneration and thrombosis of small cerebral arteries —an anæmia which is rapidly removed by the establishment of a collateral circulation (*Niemeyer*). But the occurrence and disappearance of circumscribed paralysis do not render it certain that there is thrombosis of small

arteries of the brain, for the same symptoms may be produced by small extravasations of blood provided they undergo a rapid absorption.

In many cases, however, the symptoms of thrombosis of the cerebral arteries are developed with great suddenness, and without premonition. For example, in Case No. II. the patient suddenly fell down insensible, and it was noticed that she had lost the use of her right arm and leg. The face, however, did not seem paralyzed, and the eyes did not deviate. The pupils were natural and acted equally to light. While in hospital she lay in a semi-comatose state, and could not be roused without much difficulty. Her paralyzed side was quite rigid, but became less so a short time before death, which occurred nine days after the attack. The left middle cerebral artery was completely occluded by a firm clot of fibrin. In Case No. V. the initial symptoms were suddenly occurring hemiplegia with temporary loss of consciousness; and they bore a strong resemblance to those of apoplectiform cerebral hemorrhage. In M. Hayem's two cases, also, death occurred very suddenly with symptoms of intense apoplexy. In all these cases large arteries were found plugged, and the occluding clots were doubtless of sudden formation. In the last three of them local arteritis was the cause of the thrombosis. Again, the symptoms are developed with great suddenness in cases where the thrombosis is induced by a fit of epilepsy or eclampsia. Of the correctness of this statement, Cases Nos. VII. and VIII. afford opposite illustrations. And we should here remark, that suddenness of development on the part of the symptoms generally obtains in cases where the thrombosis is caused by inflammation of the arterial walls, on the one hand, and epilepsy or eclampsia, on the other.

Besides cerebral anæmia and cerebral softening, among the possible consequences of thrombosis of the arteries which supply the brain with blood, is cerebral hemorrhage. For example, in Dr. Echeverria's case, occlusion of the basilar artery with thrombus caused aneurismal swellings of the vertebral arteries within the cranium to occur, one of which ultimately burst and deluged the base of the brain with blood, producing death thereby. But cerebral hemorrhage may be induced by thrombosis in still another way, in cases where the minute arteries of the brain are extensively weakened by atheromatous degeneration, fatty or granular infiltration, and the occurrence of the miliary aneurisms first described by Drs. Charcot and Bouchard, namely, by the bursting of these vessels when they happen to be subjected to the strain required to carry on a collateral circulation. Of course, in the cases belonging to this category, the symptoms produced by thrombosis of the cerebral arteries are supplemented by those of cerebral hemorrhage.

*Diagnosis.*—This disease is to be distinguished from encephalitis, apoplexy, cerebral embolism, and cerebral hemorrhage. Inasmuch as thrombosis of the cerebral arteries is most frequently the result of atheromatous

degeneration of the vascular walls, and inasmuch as this change is met with chiefly in old age, we are more apt to suspect the presence of thrombosis, and consequent softening of the brain, in an old decrepit person, who has the symptoms of severe brain trouble, than in a young and vigorous one, who exhibits the same symptoms. If the peripheral arteries be rigid and tortuous, there is still greater presumption that the cerebral arteries also are degenerated, and that the brain symptoms are connected with this lesion. However, the condition of the peripheral arteries does not furnish any very reliable proof as to that of the cerebral arteries. For, not unfrequently, the cerebral arteries are extensively changed by atheroma, while the peripheral arteries are free; and, *vice versa*, it occasionally happens, that the peripheral arteries are extensively degenerated, while the cerebral arteries remain free. Moreover, circumscribed anaemia of the brain substance, and softening of the anaemic portion in consequence of necrosis, is not the only brain-disease which is produced by atheromatous degeneration of the cerebral arteries. Experience has shown that while atheromatous degeneration usually induces dilatation of the larger arterial trunks, it, on the other hand, generally causes contraction or diminution of calibre, when seated in the walls of the smaller arteries. Besides, the atheromatous arteries of the brain are usually narrowed in calibre for a long while before they get completely closed by thrombosis. Hence the phenomena of thrombosis, or, rather, of the circumscribed anaemia and circumscribed necrosis of the brain-substance which result from it, are almost always preceded by warning symptoms, occasioned either by disturbances of the cerebral circulation which are induced by contraction of certain of the cerebral arteries, or by senile atrophy of the brain which has been caused and hastened by atheromatous degeneration of these arteries. Such patients complain of headache, dizziness, ringing of the ears, flashes before the eyes, loss of memory and power of thought; they are apathetic and indifferent, and much inclined to sleep; but their sleep is disturbed by uneasy dreams. As a rule, the arteries that are first obstructed are very small, and the obstruction itself consists either of atheromatous deposits, which have encroached upon the arterial canal until they completely obliterate it, or of blood-clots that have been formed in arterial canals already narrowed and roughened by atheromatous degeneration. The anaemia which results from closure of these small arteries is of limited extent, and hence may readily be removed by an increase in the supply of blood received through the neighbouring vessels. We must bear this in mind when, in a marasmic patient, who for some time has had the head symptoms designated above as premonitory, other brain symptoms appear, and, after lasting for a time, go away again. Among these symptoms are inability to say particular words, loss of memory for certain names and numbers, pain, and a feeling of formication in the extremities, numbness, and a feeling of going to sleep in certain limbs, occasionally confined to certain

fingers and toes, contractions and paralysis of the face and extremities, which are occasionally limited to certain fingers and toes (*Niemeyer*), impaired sight, impaired speech, difficulty in protruding the tongue, dysphagia, etc.

But if a large artery, or several small ones going to the same part of the brain, be closed by thrombosis, a collateral circulation that will save the anæmic part of the brain from necrosis cannot in general be established, especially if the degeneration of the arterial walls be extensive, and then the affected portion of the brain loses its functional power forever. There are, however, some parts of the brain—for instance, the large medullary masses of the hemispheres—that may be destroyed without any apparent loss of function. This fact, which has been attested by numerous observations, explains the occurrence of those cases of cerebral softening wherein no symptoms of paralysis appear. We must know this in order to understand that occasionally it is quite impossible to distinguish softening of the brain from simple senile atrophy, because the most important point for the differential diagnosis is wanting. But, far more frequently, the results of thrombosis of a large cerebral artery, or of numerous small ones, extend to parts of the brain whose loss of function induces paralysis, and even hemiplegia; particularly the corpus striatum and thalamus. The arteries supplying the great hemispheres, and the large ganglia lying in them, just mentioned, with blood, are the cerebral arteries which are most frequently occluded by thrombosis; and, even if the anæmia that results directly from the closure, and the softening consequent thereon, do not extend to the corpus striatum and optic thalamus, these ganglia will readily be deprived of their functional power by the occurrence of collateral oedema about the spot of softening, or by the capillaries of the entire hemisphere becoming compressed by this oedema. If a large artery be stopped up by a thrombus, originating in disease of its walls, and growing slowly, or if several smaller arteries be stopped up, one after the other, the paralysis comes on slowly, and increases gradually. Cases running this course are recognized the most readily of all; for, although gradually forming and slowly progressing paralysis occurs in many other cerebral diseases, if it present itself in an old marasmic subject, who has had the symptoms above described, we must first think of thrombosis of the cerebral arteries, and of the necrotic form of cerebral softening, in framing our diagnosis. While the symptoms of paralysis, which are very often and unaccountably accompanied by rigidity and contraction of the paralyzed part, gradually increase and extend, the patients become more apathetic, grow imbecile, pass their excrements involuntarily, get bed-sores, and finally die of marasmus and coma (*Niemeyer*).

Thrombosis of the cerebral arteries may readily be distinguished from encephalitis by the absence of fever, and by the non-appearance of the symptoms which characterize the latter disease. It may, in most instances,

be distinguished from apoplexy by the fact that its symptoms are more or less slowly or gradually developed, while in apoplexy the attack is always sudden ; and even in those cases of thrombosis of the cerebral arteries where insensibility occurs suddenly and without premonition, a differential diagnosis can, not unfrequently, be made between it and apoplexy, from the circumstance that well-marked hemiplegia is present, and that the insensibility is not attended with stertor ; for in cases of apoplexy hemiplegia is usually absent, and stertorous breathing almost always present. This disease may generally be distinguished from cerebral embolism, without much difficulty, by paying attention to the following points : 1. The attack of cerebral embolism is always suddenly developed. 2. The victims of cerebral embolism are generally much younger than those of thrombosis of the cerebral arteries. 3. The attack of cerebral embolism is always preceded by warning symptoms of a peculiar character. They do not relate to the brain, but, on the contrary, are produced by the diseases of the heart and other thoracic viscera, in which the embolia that block up the cerebral arteries have their origin and starting point. With regard to distinguishing cerebral thrombosis from cerebral hemorrhage, there remains what follows to be said. In some cases the differential diagnosis is tolerably easy, in others it is extremely difficult, and in many instances it is impossible. The difficulty in forming a diagnosis arises from the great similarity which usually obtains between the phenomena of these two diseases. For example, both of them are chiefly met with in the aged. The premonitory symptoms of both are the same. Hemiplegia is apt to be a strongly-marked feature of each of them. In cerebral hemorrhage, as well as in thrombosis of the cerebral arteries, the symptoms in most cases are not developed all of a sudden, but one after another, that is, gradually and more or less slowly, as Troussseau has shown. The only cases of cerebral thrombosis which can be distinguished from cerebral hemorrhage, with certainty during life, are those in which the symptoms have been developed very slowly, and the paralyses are limited in extent, transient in duration, and shifting in character. The more rapidly the symptoms are developed, and the more extensive the paralysis, or the more nearly complete the hemiplegia is, the more difficult it becomes to make a differential diagnosis. In the cases where the attack begins with the sudden occurrence of insensibility and hemiplegia, or with suddenly formed hemiplegia alone, these diseases cannot, in general, be distinguished from each other, during life. This correspondence is easily explained. In such cases, if the symptoms be due to thrombosis, the occluded artery is either a large one or numerous small ones which supply the motor tract with blood, and the closure has likewise been rapidly produced. In cerebral hemorrhage, also, most generally, the corpus striatum and optic thalamus are either torn and crushed by the effusion itself, or their functional activity is suspended by the compression which their capillaries sustain in common with those of

the whole hemisphere, when the extravasation happens to be a large one. Moreover, rupture of the cerebral arteries is most frequently met with in old people, and is very often attended with those atheromatous changes of the arterial walls, which are concerned in the production of senile thrombosis. According to Niemeyer, Bamberger, an undisputed authority on diagnosis, states that, in his notes, he finds seven cases wherein there was an error of diagnosis, and the real condition of affairs was discovered only at the autopsy; he considers it impossible to avoid this error, and says that he seldom ventures to make an absolute diagnosis of cerebral hemorrhage, from an apoplectiform attack. We should here remark, that it makes but little difference, in a practical point of view, whether the diagnosis in a given case is undetermined as between thrombosis of the cerebral arteries and cerebral hemorrhage, because the treatment of both disorders is substantially the same.

*Prognosis.*—The prognosis in cases of thrombosis of the cerebral arteries is generally bad, for the reason that, although recovery from a given attack may take place by the establishment of a collateral circulation, the persistence of the original causes of the disease, especially those connected with atheromatous degeneration of the arterial walls, will sooner or later lead to the closure of other and larger cerebral arteries with thrombi, the production of an anæmic state of the corresponding part of the brain, which cannot be relieved by the establishment of a collateral circulation, soon followed by necrotic softening of this part of the brain, and ultimately by death. But the prognosis is particularly unfavourable when the presence of well-marked hemiplegia and other symptoms denotes that a large artery, such as the middle cerebral, belonging to the side opposite to that which is paralyzed, is the seat of complete occlusion by a thrombus, for then the affected portion of the brain is large in size, and, inasmuch as it cannot get relief by the establishment of a collateral circulation, because of the impossibility of such an occurrence under the circumstances, it loses its functional activity forever. Another especially unfavourable prognostic is the continuance of symptoms of profound and wide-spread paralysis beyond the third or fourth day, for, by the end of this period, the part of the brain deprived of its blood-supply usually passes into a state of necrotic softening, from which recovery is impossible. Thrombosis of the cerebral arteries, when induced by epilepsy or eclampsia and alcoholic intemperance, generally proves fatal in the course of a few days. (*Vide Cases VII., VIII., and IX.*) The coincidence of *arcus senilis* with even comparatively slight symptoms of cerebral thrombosis is an evil omen, because it denotes that, in all probability, the walls of the cerebral arteries are extensively degenerated, and that, if the symptoms of thrombosis pass away, and recovery apparently takes place, fresh thrombi will certainly form in these vessels, and in the end destroy the patient. Senile marasmus and a weak and fatty condition of the heart are also evil omens when met with

in cases of cerebral thrombosis, for the former indicates that the blood is in an abnormally coagulable condition, and the latter favours the occurrence of stagnation in the cerebral vessels, both of which circumstances strongly favour the formation of fresh coagula in these vessels. Confusion of ideas and delirium, coming on some time after an attack of cerebral thrombosis, also failure of the intellectual powers, denoted by the occurrence of apathy and imbecility, are also bad prognostics. The appearance of the symptoms of general paralysis with bed-sores, relaxation of the sphincters, and coma, usually indicates that death is at hand.

*Treatment.*—We cannot, by therapeutic or any other means, dissolve the coagula which obstruct the cerebral arteries in this disease. We are equally powerless to remove most of the causes which lead to the formation of these coagula. We can, however, lessen the force of some of them, especially if the patient has exhibited only the premonitory or initial symptoms of an attack. We can enjoin upon him to avoid all unusual exertion and bodily fatigue, the depressing effect of which proved so disastrous in Cases No. III. and No. VIII., as well as in Dr. Packard's case. If the blood tends to stagnate in the cerebral arteries on account of feeble heart-action, we can obviate that tendency by the judicious administration of bitter tonics, wine, or some other alcoholic stimulant, and belladonna, the latter being one of the most reliable of all of the cardiac stimulants. If there is a liability to epileptic seizures, it may be removed by the administration of bromide of potassium, bromide of sodium, and bromide of ammonium. If there is a tendency to the occurrence of vasomotor paralysis of the cerebral bloodvessels, resulting from the abuse of strong drink, it may be removed by correcting the evil habit itself, and by the administration of liquor ammoniæ acetatis, alternated with doses consisting of tincture of lupulin and Hoffman's ether. If the patient is syphilitic, iodide of potassium in full doses may do him good. If he is marasmic, tonics, stimulants, nourishing food, and fresh or change of air may be prescribed with advantage. We may here remark, that wine and other alcoholic stimulants generally agree with and do good to aged patients who are suffering from debility, brain-trouble, and weakened action of the heart. Stimulants also are generally recommended in the treatment of softening of the brain, and they usually do good if there are no signs present of cerebral irritation. If the patient is fairly down with an attack of cerebral thrombosis, the indications are to prevent the extension of the coagulating process in the cerebral arteries, and to favour the establishment of a collateral circulation. We can do something towards fulfilling the former by enjoining quietude, and by administering liquor ammoniæ acetatis together with some of the tonics, stimulants, and alteratives already mentioned, according to the special requirements of the case. We can do but little towards fulfilling the latter indication. But the occlusion of the cerebral arteries with thrombi may be followed by cerebral excitement or

irritation, denoted by pain in the head, flashes before the eyes, vomiting, cramps, and contractions of the extremities, etc. In such cases, it may be requisite to administer purgatives, and aconite, or veratrum viride; also to apply leeches behind the ears and cold to the head. In such case, venesection should generally be avoided as a dangerous measure, because it is liable to diminish the strength and weaken the action of the heart too much, while at the same time it increases the coagulability of the blood itself; unless, perchance, the patient's face is red and plethoric, the pulse full and strong, and even then a large quantity of blood should not be taken. In the analogous condition of the lower extremities, small or moderate venesecti ons have often proved extremely useful in cases where the patient was red-faced and plethoric, the pulse full and hard, and the heart not obviously fatty. It is impossible to lay down many general rules for the treatment of this disease. The physician should make a special study of each case; its therapeutic indications should be anxiously sought for and carefully fulfilled by appropriate medication.

62 EAST TWELFTH STREET, Jan. 31, 1873.

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ART. VII.—*An Inquiry into the Nature of the Yellow Fever Poison, with an Account of the Disease as it occurred at Governor's Island, New York Harbour.* By GEORGE M. STERNBERG, M.D., Brevt. Major and Asst. Surgeon U. S. Army.

THE literature of yellow fever is so extensive, and the facts recorded relative to the numerous epidemics which have occurred since the early settlement of this continent so numerous, and apparently so contradictory, that a "contagionist," or a "non-contagionist," a believer in the local origin, or in the invariable importation of the disease, can readily find material for a voluminous work in favour of his particular theory.

No theory, however, which does not explain all the well-attested facts can be considered satisfactory; and I believe it can be readily demonstrated, that the theory of a personal contagion giving rise to the disease on the one hand, or of its local origin from atmospheric and telluric influences on the other, are both untenable.

There are three agents, to one of which we must (in the present state of our knowledge) refer the poison, which, by its action upon the human system, produces yellow fever, viz. :—

(a.) A volatile inorganic matter.

(b.) A lifeless organic matter of the nature of a ferment, which, by catalytic action, is capable of transforming, otherwise (comparatively) harm-

less substances, present in the earth, or in the atmosphere, into the maturities morbi of yellow fever.

(c.) A living germ, capable, under favourable conditions as to heat, moisture, etc., of rapid self-multiplication, and acting, either directly, or indirectly by catalytically transforming other substances into the efficient cause of the disease.

That the poison is of the latter nature, is, I conceive, the only theory consistent with the observed facts in regard to the origin and propagation of the disease, and that upon it all the otherwise contradictory facts are reconcilable. In support of this I will first submit a few concise propositions which seem to me capable of proof, and will then briefly discuss these propositions and the legitimate inferences to be drawn from them:—

1. *The yellow fever poison is not an emanation from the persons of those sick with the disease.*

2. *It is not generated by atmospheric or telluric influences.* A certain elevation of temperature is, however, necessary for its multiplication, and its rapid increase is promoted by a moist atmosphere, and probably by the presence of decomposing organic matter.

3. *The poison is portable in ships, goods, clothing, etc., and a minute quantity is capable of giving rise to an extensive epidemic.*

4. *Exposure to a temperature of 32° Fahrenheit completely destroys it.*

5. *It may remain for an unknown length of time in a quiescent state, when not subjected to a freezing temperature, or exposed to the conditions necessary to its multiplication, and may again become active and increase indefinitely when those conditions prevail.*

6. While liability to the disease, and its severity when contracted, depend to a certain extent upon age, sex, temperament, previous habits, and acclimation, they also depend to a great extent upon the degree of concentration of the poison—that is to say, the larger the dose, the greater the probability of an attack, and the greater its severity.

If the first three propositions be proven, viz., that the poison is portable, that a small quantity may increase indefinitely, independently of the human body, and that it is not produced by atmospheric influences, then the necessary inference is, that it is capable of self-multiplication, which is a property of living matter only.

In support of the first proposition I shall confine myself to the facts as they came under my own observation at Governor's Island, New York harbour, during the epidemic which occurred in the summer of 1870.

It will first be necessary to give a sketch of the topography of the island.

Governor's Island has an area of sixty-three acres, and, at the time of the epidemic under consideration, had a population of 722, of whom 157 had the fever, and 49 died. It will be sufficiently accurate for our purpose to consider the island a square, having one side facing Brooklyn, and the opposite side looking towards New York. On the Brooklyn side, in the

order named, commencing at the northeast corner, were the following buildings: A one-story frame tenement, with basement kitchens, occupied by the families of four married soldiers; next the post hospital;<sup>1</sup> next a frame building, occupied as quarters for the band; next a two-story brick building, used as quarters for about eighty music boys, who were on the island for the purpose of instruction; next a row of one-story frame tenements occupied by company laundresses.

There were no buildings upon the south side of the island, but at the southeast corner is Castle William, which, at the time referred to, furnished quarters for about one hundred and fifty general prisoners, undergoing sentence of courts martial.

On the New York side of the island is the arsenal. Two officers, with their families, resided here, and about ten or twelve men were employed about the place.

On the side of the island facing up the East River were the quarters for officers. These are two-story frame buildings, and contained at this time five families, numbering in all eighteen persons.

Considerably to the New York side of the centre of the island is located Fort Columbus. The garrison consisted of three companies, numbering together about two hundred and fifty men.

The facts in disproof of the personal contagiousness of yellow fever, as it occurred at Governor's Island, were as follows:—

1. The disease first made its appearance in the frame house at the northeast corner of the island. It speedily moved through all the buildings on the east side and the adjacent officers' quarters on the north side, but it did not invade Castle William, Fort Columbus, or the Arsenal. In the infected locality but very few escaped, and in all one hundred and fifty cases occurred. In the uninfected portion, which contained more than two-thirds of the whole population, but three or four cases occurred, and all of these had probably been for a greater or less time in or about the infected buildings on the east side. Communication between persons living in different parts of the island was unrestricted in the earlier part of the epidemic; but afterward, I believe, the soldiers in Fort Columbus and in Castle William were prohibited from visiting the infected locality.

2. After more than half the music boys had taken the fever, the remainder were removed from their barracks to the quarters inside Fort Columbus, adjoining those occupied by the permanent companies. These boys had unrestricted communication with the remainder of the garrison, and a number of them were taken sick with the fever shortly after their removal inside the fort. (These cases had evidently contracted the disease before their removal.) Yet the garrison of Fort Columbus escaped the disease.

<sup>1</sup> A brick building, with a one-story frame ward on the south side of it, which ward was used for the reception of patients.

3. Before the island was placed under quarantine, a number of persons from New York visited their friends who were sick with the fever in the house where the disease first made its appearance, some remaining in the house more than twenty-four hours, and some for a shorter time. Thirteen of these persons were taken sick with yellow fever after their return to New York, and ten of them died. They were scattered about in different parts of the city, and a number of them were admitted to Bellevue Hospital, yet no one in New York contracted the disease from them.

4. One hundred and fifty yellow fever patients were removed from Governor's Island and placed under my care at the quarantine hospital in the lower bay. At this place there were ten persons, including the nurses, at the hospital, and the family and servants of the superintendent, who had never had yellow fever, not one of whom contracted the disease.

From these facts it seems clear that the disease, as it occurred at Governor's Island, was not personally contagious. A vast array of evidence from other sources might readily be presented in further proof of the non-contagious nature of yellow fever, but this is a point which is now generally admitted by the best authorities.<sup>1</sup>

It is true that many observations have been recorded which seem to support the belief that the disease has been communicated in certain instances by personal contagion, but I shall endeavour to show presently that these facts are readily explainable upon another hypothesis.

The supposition that the *materies morbi* of yellow fever is an inorganic substance, produced by certain atmospheric or telluric influences, or a combination of both, is untenable for various reasons. First, it cannot be reconciled with the portability of the poison, of which there is ample evidence.<sup>2</sup>

We might admit the possibility of such a substance being transported in

<sup>1</sup> For proofs of non-contagion, see *La Roche on Yellow Fever*, vol. ii., pp. 236 to 566.

Dr. Thomas, after thirty years' practice in New Orleans, from 1818 to 1848, declares that he never saw or heard of a well-established example of the communication of yellow fever to any person in the country by patients who had contracted the disease in the city during a visit while the epidemic was prevailing. The same exemption proved constant when unacclimated residents of the city who fled, but nevertheless sometimes sickened and died, or recovered in the country, after having lived in the same houses and slept in the same beds with the country people.—*Bennet Dowler, Tableau of the Yellow Fever of 1853.*

<sup>2</sup> For proofs of the portability, see "A System of Medicine" (Reynolds), vol. i., p. 678, for case of bark Heckla, by which yellow fever was brought from Cuba to Swansea, Wales.

Also, Circular No. 1, Surgeon-General's Office, Washington, D. C., June 10, 1868, pages 17 to 39, for detailed account of the introduction of the disease to various points on the Gulf of Mexico, during the summer of 1867.

Also, Annual Report of the Health Officer of the Port of New York for 1872.

sufficient quantity in the cargo of a vessel to infect the atmosphere (if a volatile substance) in the immediate vicinity of the wharf where the cargo was discharged, for a limited time ; but in this case the disease should be most widespread at its first appearance, and the area of infection decrease as the poison became dissipated, and upon the removal of the infected articles the epidemic should terminate. It is well known, on the contrary, that all epidemics have had a small beginning, and that the number of cases and the area of infection increases from day to day until cold weather puts an end to the disease or the absence of individuals susceptible to it limits the number of cases. Recurring to the epidemic at Governor's Island, it is difficult to conceive that any local causes could have existed on one part of the island, capable of producing an extremely fatal form of disease, which did not exist to an equal extent on the other portions where there was no sickness, or which did not exist along the wharves and river-streets of New York and Brooklyn to a far greater extent. In the latter localities the elements of heat and moisture were present to as great an extent at least, and the additional leg of the tripod, upon which believers in the local origin of the disease lay most stress, viz., filth or organic matter in a state of decomposition, was abundant in numerous localities in the two great cities, while the little island, under strict military surveillance, with an ample force of prisoners on constant police duty, was at all times kept as clean as possible. The only unpleasant odour which assailed the nostrils in going from one end of the island to the other was that of chlorine, from the little dabs of chloride of lime which were regularly scattered along the dry and clean open brick drains. The advocates of the local origin of yellow fever can point to many instances where no clear history of importation can be produced. The epidemic at Governor's Island is such an instance.<sup>1</sup>

<sup>1</sup> There is a strong probability that the germs which gave rise to the disease at Governor's Island, first lodged upon a point of land which is only uncovered at low tide, and which projects into the water just in rear of the house where the first cases occurred. The current at ebb tide sets from the Brooklyn side in such a direction as to strand anything thrown into the water in the neighbourhood of Atlantic docks upon the point of land referred to. It is known that certain vessels from infected ports discharged cargo at these docks a short time before the disease made its appearance. There is no evidence that any cases of fever occurred upon these vessels while on their voyage or after their arrival in port. When we consider, however, that the crew of a sailing-vessel is small, that the sailors on vessels from infected ports are often protected by having had a previous attack of the disease, and lastly, that it is the interest of master and crew to conceal or misrepresent the facts in regard to any sickness that may have occurred to avoid detention at quarantine, it cannot be accepted as proven that a certain ship did not bring infected articles into port because no evidence of sickness during the voyage can be elicited. In this connection we may refer to the cases reported in the annual report of the Board of Health of the city of New Orleans for 1872 as being very instructive.

But, on the other hand, numerous instances can be given where the disease has clearly and unmistakably resulted from direct importation. Even were a thorough investigation made in every case, many possible avenues by which the poison might reach a large city must necessarily escape attention.

A further argument against the local origin of the yellow fever poison is found in the fact that epidemics of the disease occur at irregular and uncertain intervals. Several years often elapse, even in those southern cities where the disease occurs most frequently, without the appearance of a single case, whereas the local causes which might be supposed to produce it recur every summer. In diseases of recognized local origin, such as intermittent and remittent fevers, each recurrence of the season during which the necessary conditions prevail for the production of the miasm, is marked by the occurrence of new cases, and this continues to be so every succeeding year unless some change occurs in local conditions, *e. g.* the drainage or filling up of swamps. Again, a very significant fact is, that the disease occurs most frequently in commercial cities, while towns in the same latitudes and under like conditions as to location, etc., but having no commerce, very rarely suffer from it.

The early cases in a majority of epidemics are also known to occur in the vicinity of the wharves and in the persons of those whose usual employment is upon and about ships.

If we suppose that the yellow fever poison is produced by the catalytic action of a lifeless organic ferment upon certain of the products of decomposition, we are still at a loss for a source of supply for the ferment, as it is shown not to be given off from the bodies of those sick with the disease nor to be produced by local causes.

The amount imported in any particular instance could only have a certain limited effect, as the changes produced in another substance by a lifeless organic ferment do not in any case with which we are acquainted increase the amount of the ferment itself, and a certain degree of concentration is required to produce any effect. For example, one part of diastase will effect the transformation of 100 parts of starch into sugar, or a given amount of pepsine will effect the transformation into albuminose of a certain limited quantity of muscular fibre. If, however, the ferment be capable of self-multiplication, or, in other words, be endowed with life, as in the case of the yeast plant, then its action is only limited by the supply of the material acted upon, that is, so long as the essential conditions as to temperature, etc., prevail.

We are thus, it seems to me, reduced by exclusion to the supposition that a specific living germ is the cause of yellow fever, either by its direct action upon the human system or indirectly by its power of catalytically transforming other substances, which without its action are harmless, into the materies morbi of the disease. By which of these methods it acts there

seems to be at present no way of determining. In either case the substance taken into the system is itself destroyed, at least in so far as its hurtful properties are concerned. Let us now inquire whether the "germ theory" will account for all the observed facts in regard to the origin and propagation of the disease. That the effective cause of yellow fever is completely destroyed by a freezing temperature is admitted. There is no portion of the United States, I believe, where frosts do not occur occasionally during the winter months, consequently the germ is not a native of our shores, but an exotic whose permanent habitat is in warmer latitudes. As would be expected, it is brought most often to those places which are nearest to, and in most intimate commercial relations with, its permanent home. But it does not follow because a freezing temperature kills the germ, that after a widespread epidemic in one of the southern cities, the first frost must destroy all the germs existing in those localities. On the contrary, it is highly probable that in warm cellars, in unventilated apartments, and perhaps under the sediment which accumulates at the bottom of drains and ditches, germs may be preserved over winter and perhaps for an indefinite number of years, and that, when again subjected to influences favourable to their multiplication, they may regain their activity and increase rapidly in number. While most of the severe epidemics in this country may be traced to direct importation, there have been numerous minor epidemics in the Southern cities, and "sporadic cases" occur nearly every year in New Orleans and Charleston, which it has been impossible to account for in the same way. While in some of these instances a careful investigation might have brought to light evidence of importation, I think we must admit that the probability is strongly against it in many cases. It is this fact which has made so many experienced physicians and accurate observers strenuous advocates of the local origin of the disease in the cities mentioned.

The possibility of the preservation of the germs in the ways indicated fully accounts for those cases<sup>1</sup> which it is noticeable occur only in the latter part of the season.

The type of the disease in these minor epidemics and sporadic cases is usually less severe than in an epidemic resulting from importation. In a very able report supporting the germ theory, published in the transactions of the Howard Association of the city of Charleston, for the year 1871, the idea is advanced that the germs, being exotic, deteriorate after a certain length of time when removed from their native clime, and particularly so in their reproductive power. As analogous cases, the West India tobacco and the long staple cotton of the seaboard are instanced. The former, if

<sup>1</sup> For an instance in which the germs of yellow fever were clearly preserved from year to year, see "The History of Yellow Fever on the Spanish War-ship Numancia." By S. Oakley Van Derpoel, M.D., Health Officer, Port of New York, reported in "The Medical Record," No. 168, pp. 562-569.

raised in the United States in successive crops from a single importation of seed, soon loses its original characteristics. The latter, if treated in the same manner in the upper country, is said to degenerate to short staple.<sup>1</sup>

We have next to explain those cases in which the evidence of personal communication of the disease has been so strong as to appear incontrovertible. This is readily done upon the supposition that the individual suffering from the disease carried, from the infected locality where he contracted it, a sufficient number of germs about his person (in the clothing, or adhering to the surface of the body, the hair, or whiskers) to give rise to the disease in others who by their intimate personal relations with him were peculiarly exposed to this source of infection. A very few germs carried in this way would, of course, if they met with favourable conditions for their rapid propagation, soon establish a new centre of infection. But if such conditions did not exist only those directly exposed to the influence of the transported germs would suffer—as, for instance, the nurse who took care of the patient, or the laundress who washed his clothing. The last proposition stated is, that (other things being equal) the liability to an attack, and severity of the symptoms, vary directly in proportion to the quantity or degree of concentration of the poison to which an individual is subjected. This proposition may not be capable of absolute demonstration, but is strongly supported by a variety of facts, and may perhaps be considered a necessary deduction if the preceding propositions be accepted as true.

It is noticeable in every epidemic that there are certain localities where the disease seems to be particularly malignant, attacking nearly every one living in the vicinity and proving fatal in a large proportion of the cases. At Governor's Island the house where the disease first made its appearance was such a locality. The cases were all of a severe type. On the contrary, many of the cases which occurred among the music boys in the South Battery were of a mild character, and early in the epidemic a number occurred in which the patient was not taken into hospital at all, but reported in person at "sick call" every morning. I also noticed that a greater proportion of those who slept in the second story escaped the disease and the cases were of a milder character than among those occupying the ground floor.

Again, in certain wide-spread epidemics at New Orleans and Charleston, those who had been supposed to be exempt, either by reason of acclimation or a previous attack, have suffered as well as the unacclimated stranger. It seems probable, therefore, that, in a sufficiently diluted form, the poison

<sup>1</sup> If the report referred to had an extensive circulation, I should hardly consider it requisite to publish this paper, as the germ theory is there supported in a satisfactory manner, and to some extent by the arguments I have used; I arrived at my convictions independently, however, and had purposed embodying them in a paper for publication before I saw this report.

may be taken into the system without producing its specific effects unless the person be particularly susceptible to its influence. But when all the conditions for its multiplication are most favourable, it may become so concentrated and potent that neither acclimation nor a previous attack protects from it.

An inquiry concerning the atmospheric influences most favourable for the rapid increase of the yellow fever germ would develop many points of interest, but does not come within the scope of the present paper. I may, however, remark that a certain continued elevation of temperature is the only condition which has been proved to be absolutely essential. That a moist atmosphere and the presence of decomposing organic substances constitute favourable conditions seems highly probable. Yet I believe that the latter element has been very much overrated. At any rate severe epidemics have occurred where this condition was apparently reduced to a minimum. Witness the epidemic at Governor's Island in 1870; at Fort Hamilton and Bay Ridge in 1856, and at Gibraltar on various occasions.

There is strong evidence, however, that the presence of decaying timbers, such as are found about all old frame houses, ships, and wharves, is favourable in some manner to the preservation and increase of the germ.

The germ theory as herein advocated may be stated as follows:—

Yellow fever is an infectious disease, produced by the action upon the human system (directly or indirectly) of a specific living germ, which finds the conditions essential to its multiplication, external to the human body. The germ is an exotic in the United States and is destroyed by a freezing temperature, but may sustain its vitality for an indefinite length of time at temperatures too low for its increase, and will regain its reproductive power when subjected to a continued temperature of about 80°.

If this theory be adopted, the proper steps to be taken for the prevention of the disease are apparent. They may be briefly stated as follows:—

To prevent the importation of germs.

To destroy them by such means as are in our power, wherever their presence may be suspected.

To remove all unprotected persons from their influence, when their presence at any point is ascertained.

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ART. VIII.—*Death from an attempt at Criminal Abortion by the Introduction into the Abdominal Cavity of a wire 17½ inches in length.* By T. GAILLARD THOMAS, M.D., Prof. of Obstetrics and Diseases of Women and Children in the College of Physicians and Surgeons, New York.

ON the morning of Dec. 20, 1872, I was called to see Mrs. X., æt. 32 years, native of the United States, wife of a physician, and mother of two children. She stated that during her pregnancies she had suffered so much

discomfort that she had determined to bear no more children. Her last menstrual period was now overdue ten days, and as she felt sure that she must be pregnant, she had proceeded to produce an abortion upon herself just fifteen hours before my visit, which was made at 10 A. M. On the previous evening she had procured a piece of steel or iron wire as long and as large as an ordinary knitting needle. At 7 P. M. she had laid herself upon her bed and passing this wire up the vagina, pushed it, as she thought, very gently into the uterine canal. It passed up with very little effort and created little pain and hemorrhage. As she found it advance she had gone on pushing slowly until the end of the wire was on a level with the vulva. Then she put her finger against it and carried it as far up the vagina as she could. Suddenly it slipped up and disappeared. This alarmed her considerably, for it had been her intention to have withdrawn the wire after its insertion for a sufficient distance to accomplish her purpose. I questioned the patient and her husband very closely, and this story was reiterated in every particular and apparently in such good faith that, although I had not believed a word of it in the beginning, I gave my full credence to it in the end.

I now requested the patient to leave her room, and had the bed, the room, and furniture carefully examined, in the hope that the wire might have slipped out, but it could not be found, and, placing her again in bed, I proceeded to make a physical examination.

The temperature was  $98\frac{1}{2}^{\circ}$ , and the pulse 120 to the minute, but this acceleration appeared due to nervous excitement rather than to any pathological development. Examination by vaginal touch revealed a uterus of normal size and presenting none of the signs of pregnancy. The os externum was rather smaller than normal, so that the introduction of a sound into it would have been a matter of some difficulty. In the vaginal wall on the left of the uterus and about half an inch from the utero-vaginal junction, there was an opening into which the tip of the index finger could be passed. Nothing was felt in it, but the introduction of the finger caused a slight flow of blood to occur. The patient was now placed upon the side upon a table before a window, and Sims's speculum introduced. The vagina having been freed from blood, the opening could be clearly seen, and through it I passed Simpson's sound for two or three inches into the peritoneal cavity, and turned it gently around in the hope of striking the wire. This hope proved delusive, and, as the dilatation of the canal by the sound produced free hemorrhage, I desisted and placed the patient again in bed.

I had noticed, in removing her from the bed to the table, that whenever she was placed in the sitting posture, she complained of severe, stitching pain in the right side posteriorly just opposite the liver. I now got her to assume this position, and whenever she did so this pain was created to such an extent that she would scream out in great agony and demand her replacement upon the back. There was no cough or difficulty in respiration, and auscultation demonstrated nothing abnormal.

On the next day I saw the patient and found that she had suffered so much during the night that she had been forced to take freely a preparation of morphia which I had left her. She described her suffering as having been paroxysmal, and stated that it had occurred in consequence of her assuming the sitting posture. To test this matter more thoroughly, I persuaded her to sit up when I was present, and instantly a severe pain seized her over the base of the right lung, which lasted for eight or ten minutes.

I examined the lung, and detected a distinct friction sound upon full inspiration, while percussion revealed a certain amount of dulness which I attributed to the commencing effusion of fluid. The temperature was now  $101\frac{1}{2}^{\circ}$  and the pulse 120.

The patient now complained of considerable pain in the nape of the neck, so that I feared that tetanus was about to develop itself, but this symptom gradually diminished, while that of pain over the base of the right lung steadily increased.

On the evening of the second day the patient appeared so ill, that early on the morning of the third day I got Drs. James L. Brown, Ward, and Walker to meet me at her house, and carried all the instruments necessary for the operation of gastrotomy. At this consultation it was decided that the operation was not warrantable for three reasons: the patient had improved since my last visit; even if a wire no longer than a knitting needle had been passed into the peritoneal cavity it was very possible that it would remain there without serious damage after the system of the patient became accustomed to its presence; and lastly, the patient and her husband, brought face to face with a grave surgical procedure, both swerved from their former statement, and expressed doubt as to whether the wire had really penetrated the abdominal cavity, or merely punctured the vaginal wall and then been lost in the bedclothes. Some of her friends too were opposed to the operation, and urged upon me that in view of her condition at that time it should be delayed at least until more untoward symptoms developed themselves.

At this time I left New York for Troy, to be absent for ten days. The patient was left in the charge of Dr. Charles S. Ward, with the injunction that if he deemed gastrotomy at any time advisable he should immediately resort to it. On the very day of my departure a violent attack of pneumonia added itself to the pleurisy already existing, and rapidly spread over the whole of the right lung. This progressed with only one remarkable development, which showed itself on the 29th of December. Upon the patient's sitting up to cough, a violent effort caused the expulsion by the mouth of a large teacupful of bloody pus. This material she continued to expectorate from that time till the close of her life. On the 4th of January I saw her with Dr. Ward, and predicted her death within twenty-four hours, at about the end of which time it occurred. Upon this visit I found the right lung entirely solidified, the patient constantly expectorating a dark, bloody pus, and the general symptoms all showing that dissolution was rapidly approaching.

On the morning of the 6th of January, about twelve hours after death, an autopsy was made by Dr. Ward in the presence of Dr. Tucker and myself. The appearance was so greatly altered that recognition was difficult. The face and trunk were very much swollen and the lips discoloured, although so short time had intervened since death, and the weather was very cold.

The peritoneal cavity being exposed by a long incision, no traces of peritonitis were found to exist in any part. Upon passing the finger deeply down towards the sacro-iliac synchondrosis of the left side, the extremity of a large wire was felt about two inches above the vaginal roof. Following the course of this with the finger, it was found to run deep down below the intestines just over the large vessels on the spine, across the abdomen to the liver; striking the right lobe of this organ upon its lower face without injuring it, it had glanced backwards, to the dia-

phragm; had penetrated this, and, plunging into the lung, entered its tissue for the distance of two inches. The wire, being seized by its lower extremity and drawn out, was found to measure seventeen and a half inches. It was, apparently, one of the longitudinal wires employed in the manufacture of umbrellas. The right lung was found to be in the third stage of pneumonia, and an abscess had formed in its lowest portion where the wire had penetrated.

This singular case presents several points worthy of consideration. It is surprising that a woman could inflict such serious lesions upon herself with so little pain, and that the lung itself could have been penetrated without the occurrence of haemoptysis. It is equally surprising that after the infliction of the injury so little constitutional disturbance was excited for so great a length of time as that which intervened between its occurrence and the development of pleurisy. Lastly, it is almost incredible, that one who had practised medicine, was not entirely ignorant of anatomy, and had never developed palpable signs of absolute imbecility, should have stood by while a wife, to whom I have every reason to believe he was sincerely attached, committed so suicidal an act.

But there is a much more important stand-point from which this subject must be viewed, and one from which in the present state of abdominal surgery the examiner may well ask for full and explicit answers to the question, "Why was this wire not removed by gastrotomy?"

We are all wise after the elucidation of a fact, and, related as this case here is, it will appear to many that it must have been from its commencement a clear one. In reality, for me, it was, I think, the most perplexing that I have ever met with at the bedside. Let me state *seriatim* the reasons which led to the adoption of the course which was pursued.

1st. I was in great doubt as to the truth of the story which was related to me. Criminal abortion is so shockingly common in New York that every practitioner familiar with its prevalence and the unscrupulousness of the miscreants who practise it, is constantly on his guard against being made a shield for the escape of the guilty party. For some time I construed the story which was told me in this way: The parties, I thought, were not husband and wife, but an abortionist and his victim on a visit to a large city to escape the espionage of a smaller community. He had punctured the peritoneum and possibly a loop of intestine, and was anxious to mislead me into the performance of a dangerous operation that would possibly result in death, which was rendered inevitable by his own action. I gave up this view in time, and believed in the story as I have related it, but, out of four physicians who examined the case, I think that I am correct in saying that I stood alone in my credulity.

2d. It was exceedingly doubtful whether the wire which had punctured the roof of the vagina was really in the peritoneal cavity or not. Although this was positively asserted by the patient and her husband at first, when brought to the crucial test of gastrotomy they became vacillating, weak,

and uncertain in their statements. Dr. Ward yielded his belief in the presence of the wire only when it was found by him in the autopsy. It may be asked whether pain at the base of the right lung increased by assumption of the sitting posture did not point to its presence? I would answer, No, because a wire only as long as a knitting needle could not possibly extend from the vagina to the lung of the opposite side, and because coincident pleurisy would have explained the symptom.

3d. Even if a wire as small and no longer than a knitting needle were deposited in the cavity of the peritoneum, it was a doubtful question, so long as no grave symptoms developed themselves, whether it would have been wiser and safer to leave it or to resort to gastrotomy for its removal. This remark does not refer to the wire (17½ inches in length) which was found, but to one the size of a knitting needle, which the patient and her husband constantly declared to have been that which was employed.

4th. Had I for a moment even suspected that so long a wire had been inserted, I would have connected the pain over the lung with puncture of that organ by the foreign substance, and this would have been a corroborative evidence of its presence. Unfortunately the patient and her husband to the end persistently falsified with reference to this point, probably from shame in acknowledging their extreme ignorance, and by so doing led me further from the truth than they did in any other way.

5th. The time for deciding the question of gastrotomy virtually passed away in three days. At the end of this time severe and wide-spread pneumonia not only made the propriety of a grave operation questionable, but masked the symptoms which would otherwise have developed in connection with the presence of the wire.

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ART. IX.—*Report of an Examination of the Eyes of 167 Inmates of the Pennsylvania Institution for the Instruction of the Blind.* By GEO. C. HARLAN, M.D., Surgeon to Wills Ophthalmic Hospital, Phila.

THE records of blind asylums, if correctly kept, should furnish us with the opportunity of determining, more nearly than any other means within our reach, the comparative frequency of the different causes of blindness.

In looking over the register of the Pennsylvania Institution for the Blind, with this end in view, it was evident, that the histories, obtained entirely from the accounts of the parents or friends of the applicants, were, of necessity, in most cases inaccurate and in many erroneous, and consequently of very little use for scientific purposes.

I therefore availed myself of the opportunity kindly afforded me by the principal, Mr. Chapin, to make a careful examination of the 167 inmates

of the institution, with a view of determining, in each case, the present condition of the eyes, and so, as far as possible, the cause that led to it.

As a greater number of the cases afforded very little interest individually, I have classified them in general summaries, making a more detailed report of those whose interest seemed to warrant it.

As the rules for admission do not require applicants to be entirely blind, but only enough so to prevent them from gaining an education in ordinary schools, comparatively few are "stone blind," without even the perception of light.

In reference to the amount of vision, I have made four classes. 1st, those who can distinguish large type, as the heading of a newspaper or the title page of a book; 2d, those who have what is called quantitative vision, which enables them to distinguish the shadows of large objects; 3d, those who have mere perception of light; and 4th, the "stone blind."

There are 31 of the first class, 46 of the second, 28 of the third, and 62 of the fourth.

It is difficult for people who enjoy the blessing of perfect sight to understand how highly the mere ability to distinguish day from night is prized by those who are limited to this melancholy pittance of vision.

Several who have been the subjects of disease of the optic nerve, or of the brain at its origin, have before them a constant "glare of daylight," never varying in the brightest noonday or the darkest midnight; and so far from being annoyed by it, they call it a comfort, and would be very loath to exchange it for the gloom of perpetual darkness.

A general classification of the diseases that led to blindness shows:—

Purulent ophthalmia in	55 cases
General      "	22 "
Traumatic    "	30 "
Trachoma    "	6 "
Keratitis    "	6 "
Amaurosis   "	11 "
Cataract (acquired)   "	1 "
Separation of retina   "	1 "
Congenital diseases and deformities	35 "

Purulent ophthalmia being generally thought to furnish the greater proportion of candidates for institutions for the blind, the number, large as it is, is scarcely so large as I expected to find it. More than half of the cases are of the form occurring in infants (ophthalmia neonatorum). As prompt and skilful treatment is almost invariably successful in this disease, it is fair to infer that nearly all of these cases would have been saved if they had enjoyed this advantage. The treatment is simple and easily applied, and should be thoroughly understood by every practitioner. Fortunately this is much more the case now than a few years since, and it is safe to predict that blind asylums will in future be, to a great extent, cut off from this hitherto fruitful source of supply.

Most of the cases of absolute blindness are furnished by the shrunken eyeballs of purulent ophthalmia.

Of the cases of general ophthalmia, five were caused by scarlet fever, three by spotted fever, and one by smallpox. In the rest the cause could not be definitely ascertained, though most of them give evidence of having originated in iritis. In one the affection of the second eye can be distinctly traced to sympathetic ophthalmia excited by long continued irritation in the eye originally diseased.

In seven of the traumatic cases both eyes were destroyed by blasting or gunshot accident; in the rest one eye only was originally injured and the affection of the other eye followed in

From two days to two months in	.	.	.	.	.	7 cases
" two months to six months in	.	.	.	.	3	"
" six months to one year in	.	.	.	.	6	"
" one year to two years in	.	.	.	.	3	"
" two years to four years in	.	.	.	.	2	"
In nine years in	.	.	.	.	1	"
" twenty years in	.	.	.	.	1	"

In none of them can any other cause for the blindness of the second eye be discovered than the influence of the injured one. The last two cases may be considered doubtful. In the one in which blindness of the uninjured eye supervened at the end of nine years, the eye secondarily affected has a dilated and immovable pupil with a greenish colour, and cataractous lens, suggesting glaucoma or, perhaps, choroiditis. The one in which twenty years supervened has white atrophy of the optic disk. The patient states that both eyes remained irritable for eight years after the injury, which was inflicted by a snowball. It is quite possible that a slow form of disease may have continued in the nerve after the ball became quiet, and extended eventually to the other eye. Nearly all of the rest are plain enough cases of sympathetic iridocyclitis.

As, in the whole range of surgery, scarcely any point is more definitely established than the injurious effect frequently excited by an injured eye upon its fellow, and no treatment is more clearly indicated than the prompt removal of the offending organ in such cases, most of these persons may be fairly set down as victims to the misplaced affection for sightless and unsightly eyeballs, in which even medical men still too often sympathize. In only three instances has operative interference been attempted. In one an anterior section was performed without effect; in two the injured eye was removed, but not until the other was "almost blind;" in none was extirpation resorted to at the precious moment when "weakness" of the uninjured eye and failure of its accommodation sounded the first note of alarm. There is no indication in any of the injured eyes of the presence of a foreign body.

The cases of trachoma and keratitis afford little interest. None of them

are completely blind, and nearly all are strumous subjects. Some doctor has left his mark on one of them, in an extensive lead deposit on the centre of each cornea. So much has been said and written upon this subject, and the fatal effects of lead, when applied to an ulcerated cornea, have now been so long and so certainly established, that it would be extremely awkward to be called to the witness stand, as an expert, in the trial of a brother practitioner for malpractice in such a case.

Of the eleven cases classified as "amaurosis," eight present well marked white atrophy of the optic disk, and three blue atrophy. No very satisfactory history could be obtained from any of them. Two of the former are attributed to "brain disease," occurring in one instance at three years of age, and in another at six. In one, blindness came on suddenly at four years of age; in another at thirteen, after "pain and inflammation." In one at four years during typhoid fever. One had intense pain in the brow for four years, commencing at thirty-six, the vision gradually diminishing and disappearing entirely at the same time with the pain. In one the sight commenced to fail immediately after a sunstroke, and was gone in less than a week. One is attributed to "brain fever," caused by a blow upon the head at two years of age, probably incorrectly, as the illness did not commence until two months afterwards. Nystagmus exists in five cases, external strabismus in one, and internal strabismus in two.

One of the cases of blue atrophy has no other history than that of a gradual diminution of sight; one at eighteen years of age had violent pain in the occiput and brow, lasting for more than three months, during which the sight progressively diminished, and was quite gone at the end of that time; the other awoke blind one morning at two and a half years of age, without previous warning; general paralysis came on a week afterwards and lasted about a week. There is external strabismus in the second case.

None of these cases of atrophy show any sign of other paralysis. Slight deafness exists in one case only.

The second case of blue atrophy, at nearly ten years after the commencement of the disease, and the last case of white atrophy, at nearly twenty years after the commencement of the disease, though both without the slightest perception of light, have before them, day and night, a constant subjective "glare of daylight." This, of course, must depend upon some continued irritation of the nerve or brain, and it is odd that it should last so long in a condition of perfect health. The most probable cause is the pressure of some morbid growth or bony enlargement.

There is only one well-established case of acquired cataract. It is that of an old man employed about the house, who had the misfortune to be a patient in the times when the operation of couching was still in vogue. He had sight for a while, but it was eventually extinguished by a disorganized vitreous.

The case of separation of the retina attributes his blindness, probably incorrectly, to a sunstroke. He has funnel-shaped detachments.

The thirty-five congenital cases consist of—

Cataract . . . . .	10
Retinitis pigmentosa . . . . .	9
Deformities . . . . .	9
Atrophy of nerve (probable) . . . . .	3
Atrophy of choroid . . . . .	3
Unknown . . . . .	1

The cataract cases present nothing of special interest. Some have been operated on with partial success. In very few does it seem likely that the cataract is the only defect, the high degree of blindness suggesting an opaque vitreous, or an insensitive retina.

The subject of retinitis pigmentosa is of sufficient interest to warrant a brief reference to the history of these cases.

J. M., æt. 20, male, was always "night-blind," but could read fine print in a bright light until within the last four years. Vision has gradually diminished until he can now just see to go about alone, and recognize persons in bright daylight. His pupils are contracted, but respond to light slightly. Blindness is absolute except in the region of the macula lutea. There is no nystagmus. He has had four brothers and four sisters. One sister and one brother are blind, making three out of a family of nine. A brother and a sister died young, about whom he is uncertain. His father's vision is good, but his mother and his maternal grandfather had night-blindness.

S M., sister of J. M., æt. 16, never had good sight, but could recognize persons six years ago. Has now merely quantitative vision. The pupils of normal size and respond freely to light. She has external strabismus and nystagmus.

S. J., female, æt. 22, had night-blindness in early childhood. Her vision gradually diminished until two years ago, since when there has been no change. Can read No. L. Snellen in a bright light, but cannot go about alone in the evening, or on a dull day. Vision confined to region of macula. Pupils normal, slightly responsive. Four brothers and eight sisters all have good vision. Parents are cousins, "but not full cousins."

L. W., female, æt. 19; hemeralopia and central limitation of field of vision well marked. Can read No. XXX., held close, in very bright light. Says her vision has never been better or worse. Pupils dilated and slightly responsive. Has four sisters, one of whom is now nearly blind, though she could see to read until sixteen years of age. No hereditary predisposition to blindness, or consanguinity of parents.

B. C., female, æt. 17, vision =  $\frac{20}{c}$  in contracted field and by bright light; hemeralopia. Pupils slightly contracted and responsive. Parents not related. No other cases of blindness in the family.

W. G., male, æt. 21, born blind. Has slight perception of light only. Pupils contracted and immovable; nystagmus; pigment spots well marked, but peripheral, and not abundant. Has had two brothers and three sisters, all born blind but two, the oldest and the youngest child. One of the

blind children is dead; one is an idiot, and the others are rather deficient in intellect. No hereditary predisposition. Parents not related.

J. C., male, æt. 19, has never seen better than now. Vision quantitative. Pupils dilated and fixed; hemeralopia; nystagmus; pigment marks decided, but peripheral, and not abundant. Has had five sisters and five brothers. One sister has the same affection. She can see to go about in daytime, but not after sundown. Her vision was never better. No consanguinity or inheritance.

C. K., female, æt. 38, could distinguish large letters until eighteen years of age. Sight gradually diminished until blindness is now absolute. Pupils dilated and fixed. Ext. strabismus. Of twelve children, seven were born partially blind, the blindness increasing as they grew older. She and one other are stone blind, the rest have perception. Parents not related. No cases of blindness in previous generation. Parents lived to old age, and children are healthy.

M. K., æt. 28, sister of C. K., could distinguish large letters until twenty years of age; can now just distinguish day from night. Pupils dilated and immovable. Ext. strabismus. The ophthalmoscopic appearances in these two cases are very beautifully marked.

Only two of these cases of retinitis pigmentosa show any signs of dulness of intellect. But two are the only members of their families affected. Consanguinity of parents can be determined in one instance. Hereditary predisposition in two. The usual history of progressive increase of blindness is wanting in four cases, in two of which blindness was almost complete at birth. In these two the retinal pigment is scanty and peripheral.

Though much has been written upon this subject, its literature is still very unsatisfactory. It cannot be said to be definitely decided whether the disease is a slow form of inflammation or a degeneration, or even whether its primary seat is the retina or the choroid. One point is unfortunately sufficiently well established, that we are powerless to oppose its progress.

The following are the cases of malformations, exclusive of congenital cataract, concerning which latter it is often difficult to determine whether it is the result of arrested or perverted development, or of intra-uterine disease.

M. S., female, has microphthalmus. The transverse diameter of the right cornea is about three lines, and that of the left two and a half lines; the normal diameter being about five lines. There is quantitative vision in the right eye. The pupils are irregular and immovable, with calcareous looking opacities at their upper edges, probably shreds of capsule. The corneæ are dotted over with numerous white specks, in their deeper layers, having much the appearance of the punctated opacities of capsular iritis. She has had four brothers and three sisters. The youngest three of the family, two girls and one boy, had perfect sight. Five out of eight children were born blind. Her mother's vision is good, but her father was born blind, and has eyes "just like her own."

E. M., female, has microphthalmus. The left eye is about the size of a cranberry. The cornea is about two lines and a half in diameter, and is opaque and bluish white, differing very little in appearance from the scler-

rotic. It has slight perception of light. The left is the same, except a ciliary staphyloma above, probably from an inflammation in early childhood. She has three brothers and one sister. One brother was born blind. She is the oldest child, the blind brother next. No other case of blindness in the family. Parents are first cousins.

H. G., male, lenses cataractous and balls decidedly small. Excessive nystagmus prevents any measurement of cornea. The eyes turn strongly downwards under the lower lid. Vision quantitative. He is the oldest of six boys, the rest of whom have good vision. His mother's eyes are perfect, but his father was born nearly blind.

W. P., male, has rudimentary balls about the size of a pea. The corneæ are not defined. The eyes appear like mere nodules of connective tissue on the ends of the optic nerves, covered by conjunctiva. They are in a constant state of motion. The lids are sunken, and the commissures contracted; no other deformity. Both parents and eight brothers and sisters have perfect eyes. Parents are not related.

It seems odd that these minute rudiments of eyes should be supplied with active external muscles, but this is the rule in such cases. Wilde, in his classical work on "The Malformations and Congenital Diseases of the Organs of Sight" says:—

"I cannot find an instance of the complete absence of all the muscles which move the globe in an eye otherwise healthy and natural, for even in cases of the total deficiency of the visual organs, rudimentary muscles have been observed. . . . We have many instances on record of the muscles being present in children born with brains, although the globes into which they would have been attached were totally absent."

W. M., male, has small eyes and cataractous lenses. The corneæ are partially opaque, flat in the right eye and staphylomatous in the left. The irides are mere narrow rims. He has three brothers and three sisters, all with sound eyes, but one brother who has "eyes like his own." No other case of blindness in the family. Parents not related.

G. M., male, balls small and shrunken looking. Diameter of each cornea about four lines. Right lens cataractous; left pupil clear, except a small white speck on the surface of capsule. There is hypermetropia,  $\frac{1}{3}$ . The catoptric test shows the presence of a lens.  $V = \frac{20}{c}$  with a  $+\frac{1}{3}$  glass.

Nystagmus and small pupil prevent ophthalmoscopic examination.

T. M., brother of G., has eyes very much like his in general appearance. In the right eye there is a coloboma of the iris downwards. Hypermetropia =  $\frac{1}{5}$  and  $V = \frac{10}{70}$ . Can read No.  $4\frac{1}{2}$  S. held close to the eye. In the left eye there is internal strabismus and an occluded pupil. There are two other brothers and five sisters. One sister has eyes like theirs, making three out of a family of nine children. Father's eyes are perfect. Mother has "one slightly deformed eye."

A. B., female. The left eye, never perfect, has been destroyed by inflammation. In the right, the lens is cataractous and shrunken, and there is a coloboma of the iris downwards and outwards. She has vision =  $\frac{5}{c}$

with a  $+\frac{1}{3.5}$  glass, through the coloboma and below the edge of the lens.

E. B., male, has rather prominent eyes, and marked nystagmus. In the right eye there is an immovable pinhole pupil in the normal position, and

quantitative vision. In the left the central pupil is rather larger than in the right, but nearly occluded, apparently by opaque capsule. There is a second pupil, about half a line in diameter, at the upper and inner part of the periphery of the iris. He can read medium-sized print, held close to the eye, through this pupil. When it is covered by the upper lid there is merely quantitative vision.

Polycoria, or plurality of pupils, is a rare deformity, and this form of it is, I think, particularly so. The five cases given by Wilde seem to have been, strictly speaking, "double pupils," formed by bands stretched across an irregular pupil, or a partial coloboma. In this, the only vision is through the second pupil, which is separated from the normal position by the whole width of the iris. I have advised the formation of an artificial pupil in the right eye.

As an illustration of the scientific value of records not made by some one interested in ophthalmic surgery, I may mention that this boy was sent to the institution by a physician of high standing and extensive practice as a case of partial blindness, resulting from an attack of small-pox in infancy.

It will be noticed that in five of these nine cases of congenital deformity, there were other blind children in the family, and that in four of these five there was blindness in one parent, and in the remaining case the parents were first cousins. Two of the cases being brothers, reduces the number of families to four.

The following three are probably cases of atrophy of the optic nerve, a rare but recognized form of congenital disease. The ophthalmoscopic examination, however, was not satisfactory or conclusive in any of them.

A. S., male, æt 22. Pupils dilated and immovable; can read No. IV. S. in a bright light for a few minutes at a time; can see better now than when a child; vision improved up to fifteen years, and has been stationary since; has one sister with good sight; no inheritance or consanguinity.

W. M., male, æt 13. Pupils slightly responsive; vision quantitative, and has never been better or worse; four brothers and two sisters; one sister blind; no inheritance or consanguinity.

L. M., sister of W. Pupils slightly responsive; slight perception of light.

In all these cases, constant and excessive nystagmus made an accurate ophthalmoscopic examination impossible. There are none of the characteristic marks of retinitis pigmentosa in any of them; the retinal vessels are contracted in at least two. The colour of the discs could not be satisfactorily made out. The refractive media are clear.

Of three cases of congenital atrophy of the choroid, the blindness has been progressive in one, who could read, with difficulty, until seventeen years of age, but now, at thirty-eight, can just count fingers; in the others, there has been no change of vision. In one of the latter, there are numerous pigment spots scattered over the retina, but I have not placed it among the cases of retinitis pigmentosa, because blindness is

principally due to a large spot of choroidal atrophy at each macula. I have not been able to detect any cause for the disease.

P. M.—The original disease cannot be made out on account of destruction of the balls by inflammation within a few years.

The statistics of the institution show a larger proportion of congenital blindness than I expected to find. In the annual report for 1866, the causes of blindness in five hundred and ninety-two pupils admitted up to that time are given, and sixty-one are set down as "born blind." There are, however, thirty-eight cases of cataract, and, as most of the pupils admitted are from ten to eighteen years of age, it is fair to suppose that at least thirty of these were congenital. Congenital blindness is also very apt to be ascribed to some "fever" in infancy, and there are a certain number of cases in which the defect is not noticed in early childhood. There were probably then fifteen or twenty per cent. of congenital cases in these five hundred and ninety-two.

Of the one hundred and sixty-seven cases reported above, nearly twenty-one per cent. are congenital.

A very important and interesting consideration in this connection is the effect of inheritance and of consanguinity of parents.

In the report just quoted, the parents are said to have been "relations, so far as known," in thirty-seven instances, and one parent blind in five instances.

Of the thirty-five congenital cases now in the institution, six are the children of blind or partially blind parents and relationship between the parents can be traced in only two instances.

In reference to the latter cause, Mr. Chapin, whose experience in this direction, as Principal of this, and formerly of a similar institution in Ohio, is perhaps more extensive than that of any one else in the country, says he always suspects it when there are two or more blind in a family. In a letter to Prof. Dunglison (*Human Physiology*, p. 690), written in 1856, he gives the cases of twelve families, in which blindness was attributed to intermarriage of near relations. In six of these families there were two blind children, in one there were three, in two there were four, and in one there were seven. He also reports two children, then under his care, whose mother was blind. "The parents have a large family of children, and all (save now and then a rare exception) go blind between the ages of sixteen and twenty." The disease can be traced back, in this family, through seven generations. As these pupils came from a distant State, there is no opportunity to examine any member of the family, but there is scarcely a doubt that the cause of their blindness is *retinitis pigmentosa*.

Mr. Chapin, in 1846, at that time Superintendent of the Ohio Institution for the Blind, inspected and reported upon a number of similar institutions in Europe; among them, the "Hospital Royale des Quinze-vingts," of Paris, founded, in 1260, by St. Louis. The blind inmates

were encouraged to marry, and the greater number were married, in some instances, to seeing persons, and in some, to other inmates of the hospital.

There were one hundred and thirteen children of these parents then in the institution, and "of all the children born in this hospital for the last twenty years (during which the then superintendent had been connected with it), of parents, one or both of whom were blind, not one has been born blind or become so since." Whether this kind of encouragement, the propriety of which is more than doubtful, has been continued, and added twenty more years of experience on this subject, I have not been able to ascertain.

Mr. Chapin further states, in his letter to Prof. Dunglison, that but one decided case of hereditary blindness had, at that time, come within his knowledge; and that he had "been acquainted with the domestic history of several hundred blind persons, and had known about twenty-five or thirty marriages in which one of the parties was blind, but never a blind offspring."

These statements seem, at first sight, to be very conclusive; but they have really very little significance in the absence of any information as to whether the blindness of the parents was congenital or acquired.

We have knowledge of but four marriages that have resulted from acquaintances formed in the Philadelphia institution—not in consequence of the encouragement of the officers, but in spite of their best efforts at discouragement. There have been one or more children in each instance. All had good sight but one, who was born quite blind, and this was the only case in which the blindness of either parent was congenital.

The six cases of hereditary blindness now in the establishment are all furnished by subjects of retinitis pigmentosa or congenital deformities.

In conclusion, I would suggest that examinations of this kind offer a field well worth cultivating, as they afford the only opportunity of recording, in large numbers, the final results of disease, and the history and nature of many cases of congenital defects that must, otherwise, escape observation entirely. The examination of the inmates of a single institution can, of course, be little more than suggestive; but if every applicant admitted to all similar institutions were carefully examined and recorded by an ophthalmic surgeon, a mass of facts, that might be positively useful, would soon be accumulated.

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**ART. X.—*Galvanism in the Treatment of Strumous Ulceration.* By**  
**THOS. W. DEERING, M.D., of Leavenworth, Kansas.**

As Galvano-Therapeutics is attracting considerable attention and is now undergoing a scientific investigation, I report the following case as of

especial interest, tending, as it does, to establish a legitimate place for that agent in the *materia medica* :—

Mrs. K., æt. twenty-nine, strumous habit, in March, 1868, when a resident of Boston, Mass., gave birth to her first child; phlegmasia dolens supervening subsequent to the establishment of lactation. The disease was combated unsuccessfully with the usual remedies. After a period of four weeks the right leg became ulcerated in the region of the inferior third of the tibia. After the establishment of the ulceration the inflammatory symptoms ceased. In the course of twelve weeks, under local treatment, the ulcers healed. Eight weeks subsequently the left leg and foot became extensively ulcerated, which continued until last September.

In March, 1870, her medical advisers suggested a sojourn in the west, as a means of improvement, as the ulceration had withstood all local and constitutional treatment. From March, 1870, until April, 1871, there was but little, if any progress made toward healing; anodyne, astringent, and mild stimulative applications being all that were applied. From the first appearance of the ulceration, constitutional remedies were used, and morphia employed daily to allay pain and procure sleep.

In April, 1871, she came under my care, having at that time been confined to her room for over twelve months. The left leg was the seat of twenty-three strumous ulcers, ranging in size from a Mexican silver dollar to a dime; the regions of the belly, of the gastrocnemius, inner malleolus, scaphoid, and fifth metatarsus were occupied by the four largest; the ulceration spreading rapidly, the tuberculous cicatrices disorganizing, the constitutional depression becoming greater, pyæmia threatening. I immediately placed her under powerful tonics, with a view to amputation. In twenty days the constitutional condition had improved sufficiently to warrant operating, but she and friends refused. From that time until June, 1871, the tonic treatment was continued, anodyne dressing being applied to the ulceration, and chloral-hydrate made use of to allay pain and procure sleep. During the year following I made a series of efforts to close the ulcers, but with only temporary benefit.

I then resolved to try, as a *dernier experiment*, the effects of galvanism, as recommended by Dr. Geo. M. Beard. Having procured an apparatus,<sup>1</sup> on July 1, 1872, I commenced making applications. At this time the dorsum of the foot was the seat of a large ulcer, extending from the head of the first, second, and third metatarsus to the posterior edge of the scaphoid; the tendons being denuded. The palmar surface was also the seat of another large ulcer; the ulceration, as a whole, being confined to the foot and lower third of the leg.

On the 10th the ulcers presented a more favourable appearance than they had done at any previous time while under my treatment.

August 1. All the small ulcers closed; the younger healing first. The four largest were reduced in size one-half.

September 25. All the ulcers completely cicatrized. The largest, the one occupying the dorsum, was the last to close.

From July 1st to September 25th, no other remedial agencies, either constitutional or local, were made use of.

The ulcerated surfaces were kept covered with lint wet in a solution of carbolic acid and water (1 to 80); patient reclining all the time with the leg and foot elevated a major portion of the time.

<sup>1</sup> Kidder's combination of thirty-six Smee's cells.

From the time of the first application the constitutional symptoms commenced to improve, and steadily progressed. At the present time (January 25) the lady is in the enjoyment of ordinary good health, and possesses a full share of constitutional vigor.

The applications were made in the following manner: The negative electrode was applied over the cerebro-spinal centre; the positive one being applied to the palmar surface of the diseased limb, anterior to the ulceration. Commenced using three cells and limiting the time of application to ten minutes, gradually bringing a greater number of cells into the circuit, and lengthening the duration of the application. At the time of complete cicatrization fourteen cells were being used daily, and the time extended to twenty minutes.

After commencing the galvanic applications no re-ulceration occurred, which had been the case previously, and the chloral-hydrate was discontinued, as the primary current, when applied with the electrodes, as above stated, met the requirement, but the reversion of the direction of the current caused local irritation and a general irritability. During the first four weeks of the galvanic treatment the soporific effects were very plainly marked; drowsiness supervening upon the application and usually followed by several hours' sleep.

Central galvanization<sup>1</sup> (one electrode being over the cerebro-spinal axis, the other over the ensiform cartilage) did not produce as marked therapeutic effects as the bringing of the body and affected member into the circuit, as during the treatment I made use of this method of application. While pursuing it the ulceration remained about the same, neither increasing nor diminishing, and the local temperature (in the foot) increased four-fifths of a degree. After resuming my former mode of application the temperature returned to its natural standard. The first twenty-two applications (the electrodes being at the cerebro-spinal centre and foot) occasioned a metallic taste and a peculiar olfactory sensation, denominated by the patient "a sweetish stench."

One peculiarity noticed, that I do not see any mention of in the literature of electro-therapeutics, was that after the ulcers had decreased in size (being from an eighth to a quarter of an inch in diameter) the process of healing was completed by scabbing; the incrustation falling off in the course of eight or ten days.

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ART. XI.—*Tracheotomy in Membranous Croup and in Diphtheria.* By  
J. G. EHRHARDT, M.D., of Beardstown, Illinois.

ALTHOUGH much has been written on tracheotomy in croup and in diphtheria, still a brief account of a few cases may prove of interest to some of the readers of this Journal.

CASE I.—May 16, 1871, I was called to a boy, aged four years and two months, who began to get hoarse and cough two days before, since when

<sup>1</sup> This is the form of application spoken of by Dr. Beard.

the dyspnoea had been constantly increasing. During the last night he had had several choking spells, from which he recovered after having been given emetic doses of horehound syrup. When I arrived at 9 A.M., the child was suffering from severe dyspnoea, accompanied by the characteristic barking cough of croup. Diagnosis, pseudo-membranous laryngitis. Administered an emetic of sulphate of copper; vomiting ensued, but without any alleviation of the dyspnoea. I then ordered the patient to inhale a weak solution of nitrate of silver, by means of an atomizer, and prescribed a saturated solution of chlorate of potassa, a teaspoonful to be given every hour.

Four hours after leaving I was again summoned, and found the little patient suffering terribly from dyspnoea. The alæ nasi were dilated; breathing was abdominal, and the infra-mammary region deeply depressed during each inspiration; lips and fingers were cyanotic. Considering that the child's suffering was urgent, that its death in a few hours seemed inevitable unless relief could be given by an operation which would admit a sufficiency of air into the lungs, and that there were as yet no severe constitutional symptoms to contraindicate tracheotomy, I concluded at once to resort to the operation. My father, Dr. F. Ehrhardt, who had accompanied me to see the patient, assisted me in the operation. I made an incision through the skin, about an inch in length, beginning just below the cricoid cartilage, then cutting through the fascia, I at once laid the trachea bare. Considerable hemorrhage ensued, which I tried to stop by cold water and pressure, but, not readily succeeding, and noticing that the child was sinking rapidly, and learning that the pulse was not to be felt, I hooked up the trachea with a common artery hook and thrust into it a knife. Air mixed with blood now rushed out through the opening, and then all at once breathing ceased. The tube could not be inserted into the tracheal wound, the incision being too small; I therefore enlarged it with a probe-pointed bistoury, and then readily succeeded in inserting the canula. Before this was accomplished life seemed to all appearances to be extinct. We resorted to artificial respiration, by compressing the walls of the chest, turning the body, insufflating the lungs, etc., and after a few minutes had the satisfaction of noticing respiration slowly returning, and in about half an hour the boy breathed easily, and his pulse could again be felt. Coughing now troubled him a great deal, and a large amount of mucus and blood was expectorated through the tube. The sudden collapse, I think, was caused by the severe hemorrhage, and perhaps also by some blood entering the trachea and obstructing the bronchiæ. The hemorrhage ceased immediately after the tube was introduced. The canula employed was a double one of silver. Six hours after the operation, the mother informed me that her son had slept nearly all the afternoon, only waking up when he was forced to cough, and then, after much bloody mucus had been expelled, would go to sleep again. His breathing at this time is natural; the pulse 92, and much stronger.

*May 17.* Was summoned very early this morning and found the boy in danger of dying from asphyxia. I had instructed the attendant the day before how to take out the inside tube in case it became obstructed, but this morning she was unable to do it. I immediately removed the inside tube, which was filled with tenacious mucus, and normal respiration was again established. Prescribed the chlorate of potash solution again. This evening, I thought the child was doing very well.

*18th.* Respiration not so tranquil as yesterday. Thinking that the

canula was stopped up, I removed the inside one, but found it clean, and the breathing was no easier through the single tube. The inspiration seemed to be easy, but there was some hindrance during the expiration, the latter was longer than the former. I then took out the entire canula and found at one side of the inner opening of the tube there was attached a piece of thick, very tenacious mucus, which had been hurled against the orifice of the tube, and being too large to enter, had adhered there and now acted as a kind of valve, opening during inspiration and closing, fortunately only partially, during expiration. The wound was beginning to suppurate. After washing the wound, I applied to it a solution of carbolic acid in olive oil, and reintroduced the canula. Continued chlorate of potassa, and ordered beef-tea.

19th. Has slept well all night; breathes easily, and seems to be getting stronger. Took out the canula, and after applying the carbolic acid to the wound, inserted it again. Continued medicine as before.

20th. Patient had a chill yesterday afternoon, which was followed by fever lasting until about two o'clock this morning, and has not slept much. Coughing troubles him, and when asked where he has pain, he points to his chest, over the sternum. Pulse 96; auscultation reveals sonorous râles, principally on the right side. There being at the time no fever, I prescribed three 2-grain doses of quinia, one to be given every two hours. Added syrup of senega to the chlorate of potash solution, to be given as before.

21st. Pulse 96; no perceptible elevation of temperature. Has had no fever since night before last; slept during the afternoon yesterday and nearly all night. Not much cough; no pain; râles still audible, but less loud than yesterday. Continued the same treatment excepting the quinia.

22d. Pulse same as yesterday; no fever; appetite improving. Takes some solid nourishment; toasted bread and broiled chicken, which he relished this morning. Removed the silver tube and introduced one of hard-rubber, made by Leiter of Vienna, which possesses several advantages over the metal, being less irritating to the wound, easier to keep clean, and does not produce that cold sensation to the patient which the metal generally does; but the chief advantage is that it is very light. I am surprised that the hard-rubber tubes are not more generally used. Before introducing the tube to-day, I closed the opening of the wound with my finger to see if there was still much obstruction in the larynx; it seemed to be completely closed, the child struggled for breath, and became cyanotic until I removed my finger. Continued treatment.

23d. Pulse 94; appetite good. The little fellow for the first time is friendly and smiles; that he cannot speak troubles him more than anything. The wound looks well; healthy granulations inclose the canula, so that there is only just sufficient space open to allow me to remove and readjust it, after cleaning it, which I have done every day since the 18th. Again tried whether he could not respire through the larynx, but that part seemed still impervious. I surmised that there must still be some false membrane impacted in the rima glottidis which prevented the air entering into the trachea through that channel. Same treatment continued.

24th. Not much sleep last night; tube was stopped up often and a great quantity of thick tenacious mucus was expectorated. This morning he seems to be very comfortable. He can breathe a little through his mouth when the opening is closed, but only very little. He suffered for want of air, and motioned to me to take my finger away. Bowels have

been constipated for three days. Ordered ol. ricini, and continue potassæ chloras.

25th. From this date to the 28th the condition of the patient remained about the same. He had a good appetite, and felt well. Amuses himself with his playthings during the day. No cough whatever. In short, the child seems perfectly healthy and comfortable so long as he has the canula inserted. I took the canula out every day and closed the wound, hoping that he would be able to breathe without it, but the air entering through the larynx was not sufficient "for the demand." Takes the same medicine.

29th. Breathes very well through the larynx when the opening is closed, and there would, I think, be no danger in leaving the tube out and covering the wound, but wishing to be on the safe side, determined to wait until to-morrow.

30th. The boy breathing well, with the opening closed, I removed the canula and applied adhesive plaster over the wound. Remained with my patient over two hours, and, seeing that he was breathing comfortably during that time, thought there was no danger in leaving him as he was. Suspended all treatment.

31st, A.M. Breathes normally. Granulations have closed the wound, so that no air escapes when the plaster is off. 8 o'clock P.M. Was summoned again. The boy breathing laboriously, as though there was a constriction at some place in the air-passages. Has fever; pulse 140, skin hot and dry. Remained with him all night. Gave him a warm bath and made warm applications around his neck. Towards morning the fever began to abate, and by seven o'clock he was in a perspiration, and respiration was better, although still laborious. Ordered three 2-grain doses of quinina, one every two hours.

June 2. Breathes as well as ever; slightly hoarse; has had no fever; is out of bed, and plays about the house with his brother.

20th. Saw the boy to-day, while visiting another patient in the same house. The wound has healed completely, leaving a very small cicatrix. Parents inform me that his breathing during sleep is more noisy than before the operation.

The interesting points in the case are, the length of time it was necessary to wear the canula before respiration through the larynx was possible, and the exacerbation which occurred two days after the wound was closed. The canula was worn fourteen days.

**CASE II.**—Aug. 31, 1872, was called at 10 A.M. to see a boy, five years old, who was taken with croup on the 27th. The attending physician had prescribed emetics from the first, but without benefit. When I saw the patient he was suffering terribly from the dyspnoea, the whole chest and abdomen assisting in the respiratory efforts. The entire body, especially the hands and face, was livid; pulse 136, very feeble; eyes glancing about wildly as if in search for relief. The poor boy threw himself from side to side, vainly searching for more air. I gave him an emetic of cupri sulphas, which produced emesis, but the dyspnoea was greater than before. Believing that the child could not live long in this state, the dyspnoea increasing, I went to my office for instruments, and on my return, after half an hour, the condition of the child was much worse. He was lying in a half comatose condition, to all appearances in the last

struggle; pulse hardly to be felt. There was no time to be lost if tracheotomy should do any good. The parents seeing the state of things readily consented.

I made an incision an inch long, beginning directly under the cricoid cartilage. After I had cut through the fascia, slight venous hemorrhage ensued, which was readily arrested by sponging with cold water. I then detached the isthmus of the thyroid gland, which in this case seemed larger than usual, with the handle of my knife, and pushed it aside. The trachea now being laid bare, I inserted a hook into it below the proposed opening, drew the trachea forward, and made an opening about half an inch long. Instantly the air rushed in, and after holding the opening apart for a few minutes with some hooks (which I had hastily constructed out of two hair pins), until part of the blood which had entered the trachea had been expelled by the respiratory efforts, I introduced the canula. The breathing now became tranquil, and the child's countenance calm. He soon after fell asleep, having had no rest for over 36 hours. Prescribed a solution of potassæ chloras, a teaspoonful every two hours, and ordered beef-tea and brandy to be given between times. 7 P.M. Has slept well all afternoon, and breathes regularly.

*September 1.* Respiration not so comfortable; the tube is partially closed by bloody mucus; after I had taken it out and cleaned it well the child again breathed comfortably. Has fever; pulse 120, very full; temperature of body increased; coughs a great deal. Prescribed a solution of muriate of ammonia with syrup of senega, a teaspoonful every two hours.

*2d.* Worse. Has had high fever continually since yesterday. Pulse 142; respiration about 40 in a minute; is very drowsy, wants to sleep continually; refuses all nourishment; has eaten nothing since the operation; has râles over the entire chest. Ordered warm poultices of linseed-meal to be applied over his chest, and continued medicine as yesterday. 7 P.M. Condition the same.

*3d.* Pulse 146, less full; inspirations 60; coughs very frequently. The tube is often closed by a thick tenacious sputum, mixed with blood. Tube requires to be cleaned frequently to prevent suffocation. Percussion elicits a dull sound over the lower part of the right lung; left side sounds normal; moist râles over the entire left side and supra-mammary region of the right; in the infra-mammary region of this side slight bronchial respiration is to be heard. Tongue is thickly coated. Patient's thirst increased; refuses all nourishment. Continued medicine as before.

*4th.* More restless; turning from side to side continually. It is impossible to get the boy to take beef-tea or any other nourishment, not even the medicine will he swallow. Pulse 156, very weak; great dyspnoea, inspirations, 64; face, hands, and feet cold; râles over the entire chest. Prescribed carbonate of ammonia with syrup of senega, and ordered poultices over the chest to be continued. 8 P.M. It has been impossible to give the patient his medicine during the day. Is very drowsy, and it is difficult to arouse him. Pulse very frequent and small; respirations short and frequent; very loud rattling over the whole chest. He died at about 11 o'clock P.M. from apnæa.

This case seemed to be doing well until the second day after the operation, when fever set in and the lungs became affected. The ensuing bronchopneumonia probably caused his death. Perhaps slight bronchitis was

already present before the operation. Although tracheotomy in this case did not save life, it made death easier.

**CASE III.**—Dec. 8, 1872, was called to see a boy, aged two years, who had had fever for two days. Pulse about 130; had difficulty in swallowing. I found enlargement and redness of both tonsils; but no diphtheritic membrane. I made the diagnosis of diphtheria because I had at this time several cases of that disease in town, and regarded it as epidemic. Cervical glands were enlarged on both sides. Ordered a piece of salt bacon to be tied around the neck, and prescribed a solution of chlorate of potassa with tincture of iron, which I have found useful in many cases of diphtheritis. The formula I use is the one recommended by Dr. J. L. Smith, in his work on diseases of children:—

R. Tinct. ferri chloridi 3j; potassæ chlor. 3j; syr. simplicis 3ij. M. S. A teaspoonful every two hours.

9th. No fever; cervical glands more enlarged; both tonsils are swollen and covered with patches of diphtheritic membrane. The child can hardly swallow, seems to suffer extreme pain while doing so. Touched the parts covered with the diphtheritic exudation with a solution of nitrate of silver, 40 grains to the ounce. Continued the same medicine.

10th. Has fever again; appearance of fauces unchanged. Child is very hoarse; voice not above a whisper; breathing quiet; no appetite; tongue thickly coated. Applied a weak solution of carbolic acid to the fauces and prescribed the medicine as before, but to be given every hour.

11th. Child very restless; great dyspnoea; cervical glands more enlarged; fauces thickly covered with membrane; pulse 140; coughs occasionally. Repeated the application of carbolic acid solution, and continued medicine as previously. Ordered beef-tea. 7 P. M. In same condition; has slept a little during the afternoon.

12th. Much worse; has slept none all night; great dyspnoea; very hoarse; not able to swallow anything; fauces much swollen and thickly covered with diphtheritic membrane; coughs a great deal. Succeeded in getting the child to swallow two emetics of sulphate of copper, after which profuse vomiting ensued. Among the vomited matter were several pieces of diphtheritic membrane. Put the child in a warm bath for five minutes, and then ordered a warm poultice to be applied around its neck; continued the mixture of tinct. ferri and potass. chloras. 2 P. M. Was hastily summoned and found my patient much worse; lips and ends of fingers and feet cold and cyanosed; thorax deeply depressed during each inspiration; pulse hardly perceptible. Although I could not expect much benefit in this case from tracheotomy, the patient being already in such a collapsed state, I nevertheless concluded, especially as the parents wished it, to resort to the operation as the only possible remedy. Much time was lost while waiting for my father to assist me. When he arrived, after about twenty minutes, the boy was nearly dead. The operation was quickly performed, not much hemorrhage taking place. The tube was inserted, two or three respirations followed, and then the breathing ceased. We tried artificial respiration for a while, but in vain. I do not believe that the operation hastened the child's death.

**CASE IV.**—Dec. 15, 1872, was sent for at 2 o'clock this morning to see a boy aged five. When I arrived the child was in great dyspnoea and

had the characteristic cough of croup. Gave emetics of sulphate of copper, and after he had vomited several times breathing became easier. Prescribed a solution of muriate of ammonia with syrup of senega. Twelve hours after there was hardly any dyspnoea, although the boy was yet hoarse. As he was running about in the room, I ordered him into bed again, and told the attendants to watch him carefully, and continued the medicine. I thought he had passed safely through what I had supposed to be an attack of spasmodic croup.

17th. Was summoned again. Found the boy with severe dyspnoea; face flushed; pulse frequent, indicating fever. Examined fauces, which seemed somewhat inflamed, but not much swollen. The seat of the disease, which I now regarded as membranous croup, was the larynx. The relapse had begun after midnight this morning. Ordered a warm bath, and again prescribed muriate of ammonia with syrup of senega.

18th. Worse; more dyspnoea; very restless; wants to be taken out of bed and put in again continually. Face anxious, imploring for more air. Administered an emetic, but without much relief to the dyspnoea. I formed an unfavourable prognosis, and made up my mind that by to-morrow I should probably have another case for tracheotomy, if the child did not die before. Ordered him to inhale a weak solution of nitrate of silver, and continued medicine as before.

19th. Patient much worse; has had a very restless night; dyspnoea increasing continually: pulse very quick and small; prolabia and fingers livid; features very anxious. I once more tried emetics, of which he required large doses, hoping that in vomiting some of the false membrane might be detached, but there followed no relief of the symptoms. Dyspnoea continually increasing; epigastric region drawn in fearfully during each inspiration; lips and fingers becoming more livid; and seeing no possible chance of relieving the child of the obstruction to breathing in the larynx, except by opening the trachea, I determined to operate. Considerable time was lost in getting the parents' consent to the operation, so that when I began the patient's condition had become considerably worse. The pulse was very feeble. Time was too precious to send for a surgical assistant; operated at once, and performed it in the same manner as in the preceding cases; there was but little hemorrhage. After holding the wound in the trachea apart for a few minutes the breathing became easy, and after the hard-rubber canula was inserted the child breathed perfectly easy, and the pulse became stronger. Prescribed chlorate of potash and syrup of senega. 8 P. M. Respiration good; pulse 120; coughs up a great deal of bloody phlegm, which frequently closes the tube and makes it necessary to remove the inside canula often to prevent suffocation.

20th. Has slept well all night; pulse 100; sputum tenacious mixed with blood. Took out the entire canula, and after applying carbolic acid-oil to the wound, reinserted it; prescribed three two-grain doses of quinia, and continue medicine as yesterday. 7 P. M. Condition the same.

24th. Have been visiting my patient twice every day since last date, during which time he has been doing very well. To-day he is sitting up in bed and amusing himself with his Christmas presents; breathes through the tube perfectly well. To-day endeavoured to ascertain if air would enter through the larynx, but the child was threatened with suffocation whenever I closed the opening.

26th. Is able to breathe a little through his larynx, but not for any length of time.

27th. Can breathe better than yesterday without the tube, but the face, especially the prolabia, becoming livid when the opening has been closed a few minutes.

28th. Respiration easy, I may say normal, when the opening is closed; determined to leave the tube in until to-morrow to be certain that there is no danger in removing it.

29th. The boy breathing perfectly easy, I removed the canula and covered the wound with plaster.

30th. Breathes well; runs about in the room as if in perfect health; a little hoarseness continues.

31st. Wound entirely closed by granulations; breathing perfectly free and easy; suspended all treatment.

*January 23, 1873.* Wound has closed nicely by a small, hardly perceptible cicatrix; speaks plainly and loud, hoarseness having entirely left him.

The room was kept continually full of steam by a kettle of water on the stove. Besides this, I ordered steaming near the bed of the patient by means of hot bricks immersed in a bucket of water, to be repeated every two hours during the first five days after the operation. I think this proceeding aided greatly in preventing bronchitis and pneumonia.

The number of children who die from croup is very great. According to Dr. Ware's statistics nineteen out of twenty with true croup die. Although the mortality at the present time is perhaps not so great, it is nevertheless one of the most dangerous and alarming diseases of childhood. When the disease has lasted over three days without remission in the dyspnoea, it is unsafe to trust any longer to medicines, which in severe cases have so little effect. A great many children die from this disease, some of whose lives might be saved by tracheotomy. That it does not always save life is no reason for omitting to perform it when the only alternative is death. In most cases death, if it does occur, is much easier for the child and its friends after the operation has been performed, than it would have been without it.

In cases of diphtheria the chances for recovery after the operation are of course much less, this being a constitutional disease in which the trachea and bronchiaæ have probably become affected before the dyspnoea is urgent enough to require the operation. Nevertheless, I think tracheotomy should be resorted to when death seems inevitable; it will at least generally prolong life.

Of course tracheotomy should only be resorted to in cases which have not yielded to the ordinary treatment. It gives us time, and the child strength to again battle with the disease. The danger connected with the operation when properly performed is slight, and I feel certain, that a greater number of those who die after tracheotomy would recover if they received better after-treatment. I attach a great deal of importance to taking out the entire canula to wash every day, and to dressing the wound properly. But the most important thing, especially in winter, is to keep the room warm and the atmosphere loaded with moisture.

As I remarked before, I prefer to use the hard-rubber canula because it is lighter and more agreeable to the patient, and easier to keep clean. Those constructed by Leiter of Vienna are made after the manner of Luer's silver ones; the canula being movable on the shield, so that its position in the trachea remains the same during movements of the patient, thereby preventing the end of it from rubbing against the mucus membrane of the trachea.

A great difficulty to be surmounted is to get the consent of the parents to the operation. They generally have such a horror of it that they will not give their consent until it is too late. I have lost two cases of croup, which I had proposed to operate upon, when I saw that death would otherwise inevitably result, but the parents refused their consent.

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ART. XII.—*Transverse Fracture of the Patella without Separation of the Fragments.* By T. CURTIS SMITH, M.D., of Middleport, Ohio.

EARLY in the month of December, 1872, Mr. J., a stout, muscular coloured man, æt. 51, while walking on ice, slipped and fell heavily on his right knee. He felt considerable pain and weakness in the joint, but walked a short distance to his house. I saw him the next day and found a transverse fracture of the patella, the fragments still in close contact, the upper one elevated above the level of the lower piece. The leg was semi-flexed, the patient sitting in a chair. To extend the limb rather increased the relative elevation of the upper fragment. To flex it to nearly a right angle at the knee, brought the fragments in exact coaptation. There was also a fracture through the external condyle of the femur, the line of fracture being semilunar in shape. There was but little displacement of this fragment, and but slight direct pressure required to return it to its proper place. The broadest portion of this condyloid fragment was three-fourths of an inch in width, and extended to its articular surface.

For either fracture no apparatus was at first applied, but the leg was ordered to be kept semi-flexed and strict quietude enjoined.

A few days later Dr. E. C. Fisher, of this place, saw the case with me. The patient had not obeyed my orders, but had risen, even walked around his room, and was sitting up, on our arrival, with leg but slightly flexed. On inspection the upper fragment was found actually overriding the lower one. This condition was so directly the reverse of what we would usually expect, that each of us examined it very carefully, and were satisfied that such was the fact. On flexing the leg, the *upper* fragment slipped into its natural site, closely coaptated to the *lower* fragment. After this date the leg was kept constantly flexed until firm osseous union occurred, which was in about six weeks. No observable deformity was left from either fracture.

The history and results of this fracture in this case are directly opposed to what usually obtains. We always expect a wide separation of the frag-

ments in transverse fracture of this bone, the separation being caused both by contraction of the quadriceps extensor, and by effusion into and swelling of the joint, by which the upper fragment is drawn or pressed upwards. There was no injury done the quadriceps extensor, no evidence of local paralysis, nor any apparent reason why the force usually exerted by that muscle should not attain in this instance, as in others; I only know that such a condition as that above described, was really and plainly present.

Every authority on this point mentions separation of the fragments as one of the constant and most pointed diagnostic signs of transverse fracture of the patella. This case certainly constitutes one well-marked exception to the general rule, and I have not been able to find a similar one reported. I report the case for its rarity more than for any practical interest relating to it.

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ART. XIII.—*Luxation of the Superior Maxillary Bones.* By G. A. WILBUR, M.D., of Skowhegan, Maine.

J. S., blacksmith, was, on the 30th of December, 1872, walking near the burning ruins of a three-storied house, when one of the chimneys fell upon him. He was borne in a senseless condition to his home a few rods distant, where I saw him in a few minutes, and found him delirious; head and face badly swollen and ecchymosed; right eye closed, and left one nearly so; blood flowing freely from between right eyelids, and from anterior and posterior nares; dyspnoea; little or no vomiting. Among many other wounds about the face and head, he had one across the nose over the lower half of the nasal bones, which was evidently caused by a blow from the long corner of a brick.

When the tumefaction had sufficiently subsided, it was noticed that the forcible closure of the jaws, as in chewing, caused a peculiar vertical motion of the face, and upon close examination it was found that, when the mouth was opened, both upper maxillary and both nasal bones dropped down from the frontal. This same vertical motion could be detected by both sight and touch along under the eyes to the malar bones; these bones remaining intact, and the nasal retaining their relations to the superior maxillary bones. At first, this vertical motion was accompanied by a slight deep-seated crepitus near the nose.

Believing this to be an uncommon accident, I called in my friend, Dr. C. W. Snow, who fully concurred with me in the diagnosis.

Rest was procured by the administration of chloral hydrate. An attempt was made to keep the displaced bones in their proper places by a bandage passing under the lower jaw and over the top of the head, but it caused so much pain through the eyes and head that it was abandoned; rest of the under jaw was enjoined, and the recovery left to nature. The displacement is now so small that no perceptible deformity will be likely to ensue.

Jan. 13, 1873. There is very little abnormal motion remaining; patient rode out to-day, and is doing finely in every respect.

## REVIEWS.

ART. XIV.—*The Practice of Surgery.* By THOMAS BRYANT, F.R.C.S., Surgeon to Guy's Hospital; with 507 illustrations. 8vo. pp. 984. Philadelphia: Henry C. Lea, 1873.

A VERY few years ago the American student wishing a text-book on surgery was compelled to choose either "Gross," "Erichsen," or "Druitt;" the first of great value as a work of reference, but too large, and entering too much into details to be well adapted for an undergraduate; the others in the American reprints decidedly behind the times, successive editions being issued without material change.

But within the last three years we have had a new edition of Erichsen, new in fact as well as in name, actually revised and enlarged; a work by Ashurst; a fifth edition of Gross; a work by Hamilton, and, now, a treatise on the Practice of Surgery by Mr. Bryant of Guy's.

The work under review claims to be "a manual of the Practice of Surgery," to "deal only with essentials and principles," "not intended to compete with such valuable works as Paget's 'Surgical Pathology' and Holmes's 'System;'" no subject having been "consciously omitted which comes under the notice of the general surgeon, although the rightly recognized specialties of eye, ear, and dental s y have been excluded." The introductory chapter deserves the careful reading of every one, student or practitioner, who may take up the volume—diagnosis, diatheses, and cachexias being considered. Two rules are laid down as proper always to be observed in making a diagnosis, rules simple and obvious enough, but yet oftentimes neglected to the injury of the patient and discredit of the surgeon.

1st. "That in the diagnosis of a case every possibility of its nature should be run over and entertained, a conclusion being arrived at by a process of elimination; each possibility being considered separately and weighed, the most probable should be finally accepted; a diagnosis framed on probabilities alone being most hazardous." And, 2dly. "Let it be an invariable rule of practice in every case of injury or disease, to compare the sound side of the body with the affected one."

Respecting the first of these, it is very truly said that "to form a diagnosis of a case mainly on probabilities as indicated by its symptoms, may be a ready, but it will ever be a rash proceeding. To form it on the possibilities, will always be a safe, although, perhaps, a less expeditious practice."

As regards diatheses it is declared that—

"Disease in subjects who have these diatheses [*strumous, scrofulous, tuberculous*] is precisely identical in its essential nature with the same disease as found in others who have them not. It may be modified in its course by the diathesis, but it is the same disease. . . . It is important for the surgeon to bear this fact in mind, for there can be little doubt the expressions, strumous disease and scrofulous disease, have had an injurious influence on the practice of sur-

gery. They have too often led the surgeon (and misled the public) to regard a local affection in a strumous or scrofulous subject as incurable, as depending on some general and not a local cause. In disease of the joints this evil has been much felt, and should be corrected."

Of cachexias it is written—

"Clinically I read the meaning of a cachexia as a looking ill, perhaps very ill, but it has no other definite signification—looking ill from cancer, looking ill from abdominal, rectal, suppurative, or syphilitic disease."

Of the many subjects treated of in the work we purpose noticing, chiefly, the "surgery of the circulatory system," "hernia," and "diseases of the urinary organs."

To the first of these about seventy-five pages are devoted, the several chapters treating of "wounds of the heart and arteries;" "hemorrhage and its treatment;" "diseases of the arteries;" "aneurism;" the "ligature of arteries;" "injuries and diseases of the veins." Wounds of the heart are, of course, declared "generally mortal," but under the head of gunshot wounds we are somewhat astonished to find the statement that such wounds of this organ "are always fatal, although not always instantaneously so."

In Fischer's tables 7 cases out of 51 of this sort are reported recovered from, in five of which the balls remained in the organ. In the case reported by Latour the patient lived six years, and in Balch's case life was prolonged eighteen years. In cases like these, even though death may be the indirect result of the injuries received, it is hardly correct to say that the wounds were mortal.

In treating of wounds of arteries, Mr. Bryant calls attention to the declaration of Sir James Paget that though a small wound of an artery followed by "repeated hemorrhages, at uncertain intervals," may heal by granulation, "the event is too unlikely to justify the waiting for its occurrence," and even if it takes place there is likely to follow a form of traumatic aneurism, "in which the sac is chiefly formed of scar-tissue, which closed the wound in the artery, and then yielded to the pressure of the blood." "Hemorrhage and its treatment" are considered at some length, and there is presented (as might have been expected from the author) a very interesting plea for torsion as the best method of arresting the flow of blood from a divided artery.

"In a physiological point of view there is no method at the surgeon's command more perfect for the control of hemorrhage than that of torsion; for unlike acupressure, which uses one only of nature's haemostatic processes, or the ligature, which is a foreign body in a wound, and becomes a source of danger by undoing at a later period of the case what has been done at an earlier by nature's own efforts, it utilizes to the utmost all the physiological processes employed by nature to prevent and arrest bleeding, and places them in the most favourable position to take effect." "Plastic lymph is poured out by the divided tunics in the same way as it has been shown to be in the application of the ligature, and it acts the same part in cementing all the arterial tunics and clot together; but there is this difference between the two forms of practice, that where the ligature has been used, the ulceration of the vessel that is necessary to allow of its escape may undo all that nature has done to seal the artery and prevent hemorrhage; whereas, when torsion has been efficiently performed and the hemorrhage arrested, no subsequent action is liable to undo the good work that has been done, or hinder the permanent closure of the vessel."

"The physiological arguments in favour of torsion are very great, and the practical advantages seem to be no less, for after three years' experience of the practice applied to vessels of all sizes, the femoral being the largest, I have

had no mishap. Wounds have united more rapidly and kindly. Primary union being the rule, there has been less constitutional disturbance after operation, and consequently less liability to traumatic fever, pyæmia, and other complications, such as we are all too familiar with in the practice of surgery. I have had stumps heal in a week, and patients up in two weeks, without one single drawback; rapid and uninterrupted convalescence following the operation. In other cases equally good success can be recorded."

"When a true antiseptic ligature has been found, by which a vessel can be secured without the introduction of any permanent cause of irritation, the above comparison will not hold good; but at present it is not in existence, although Mr. Lister's investigations in that direction with catgut ligatures steeped in carbolic acid are encouraging in the extreme."

Of acupressure, the opinion is expressed that "as a general mode of arresting hemorrhage, it seems improbable that it will hold its ground, indeed it is but little practised at the present time. It is, however, a valuable mode of temporarily arresting hemorrhage in certain cases where the ligature and torsion are inapplicable."

Reference is made to Speir's artery-constrictor, which, it is thought, "may be useful for obstructing arteries in continuity, as for aneurism. For divided vessels it has no advantage over torsion."

Of transfusion, it is said that "the smaller the quantity of blood transfused the better," and that "the operation has not hitherto been a very successful one."

Arteritis and atheromatous disease are considered together, since, according to the views of our author, there is "no question as to there being a close relationship between the two affections. Virchow and Billroth, abroad, Wilks and Moxon, in this country, have fairly proved that atheroma of an artery is due to a subinflammatory process." Here, as Mr. Bryant himself says, is one of the points of difference between himself and many of the writers of surgical text-books. That atheroma is likely to be followed by the formation of aneurism is denied, Moxon's views being accepted, that "the more inflammatory changes tend more to produce aneurisms than do the atheromatous patches;" atheroma causing the formation of a pulpy mass in the coats at any spot, generally thick and hard and unyielding, and not giving way to pressure, so as to form an aneurism."

The definition given of aneurism ("a sacculated tumour communicating with the canal of an artery, and formed from its walls") we do not like as well as the one more frequently given ("a pulsating tumour filled with blood and communicating with an artery"), since it does not strictly include what have been described as diffused, spurious, or consecutive aneurisms. As respects the division into true and false our author says:—

"When all the coats are involved in the sacculated dilatation it has been the fashion to describe it as being *true*; when the two inner coats have given way, and the external or cellular alone remains, *false*; but I agree with Holmes, that it is impossible, clinically, to perceive any difference between true and false aneurisms at the time at which they generally come under observation. The true become false as they grow, and the false are far the more common."

Respecting the termination of aneurisms, it is said that "a thoracic or abdominal aneurism may burst into a mucous tract, such as the trachea, pharynx, oesophagus, or intestine, and when it does Dr. Gairdner has shown that it proves fatal by a recurrent hemorrhage through a small orifice; when it bursts into a serous cavity, such as the pleura, pericardium, or peritoneum, it destroys by a sudden hemorrhage through a large aper-

ture." However true this may be as a rule, it is a rule having its exceptions, as we have ourselves had occasion to see, a case of thoracic aneurism under our care having terminated fatally in less than two minutes from a first and terrific hemorrhage into the left bronchus.

The treatment by compression, the "Dublin method," is declared to have "now found a firm place in surgery"—

"Modern experience fairly proving the soundness of Dr. W. Murray's observation, that the principle on which the rapid method rests is clearly 'the complete stagnation of a mass of blood in the aneurism until it coagulates.' For this purpose digital pressure is undoubtedly the best; when this cannot be made available, mechanical means must be employed, and the nearer it approaches to digital pressure the more undoubtedly it is to be preferred. . . . When digital pressure can be employed and is successful, it is more rapid than any other, and, as a rule, less painful."

When it cannot be applied, the next best is instrumental pressure. Attention is called to the fact that the circulation through an artery as large as the femoral can be controlled for hours by the "finger applied directly on the vessel, and the weight adjusted upon the finger." That this is worth remembering, every one who has had anything to do with digital compression will readily acknowledge.

Combined flexion and compression is referred to, and a case mentioned in which by alternating these methods cure was effected in eighteen hours. We have elsewhere referred to a case in which in less than two hours consolidation was effected by the combined methods.

"The treatment by ligature should only be entertained when that by compression in one of its forms is inapplicable, or has proved unsuccessful." Notice is made of the recurring feeble pulsation "a day or two after the application of the ligature," even in successful cases, and of the persistent pulsation in cases of "vasa aberrantia;" elsewhere the usual principle is laid down that the operator "should satisfy himself when the vessel is on the needle that pulsation exists, and that pressure upon it arrests pulsation in the aneurism," and this rule should have been noticed in these paragraphs on ligation and its after-results. It should be borne in mind, also, that sometimes (as we saw in a case of popliteal aneurism several years since), after ligation of the main trunk a superficial vessel running over the tumour becomes so much enlarged that its pulsation is very apparent, and may for the moment give rise to the belief that pulsation is still present in the aneurism. Ligation on the distal side, it is declared, "cannot be recommended with any confidence except in carotid aneurism;" but is "justifiable" in innominate aneurism. The treatment by manipulation, "based on natural, although exceptional, processes," may be "used in appropriate cases when all other treatment is out of the question."

The treatment by galvano-puncture "can only be entertained in exceptional and otherwise hopeless cases." That by injection "has not been satisfactory;" the production of coagulation "in the sac of an aneurism by such means is a dangerous proceeding." A passing notice is made of Langenbeck's treatment by injection of ergotin, but we infer that Mr. Bryant does not expect much from it. In the treatment of nævus by ligature attention is called to the fact that, when the nævus is large, the tying of a part of it may by extension of inflammatory action destroy the whole. The chapter on the ligature of arteries is introduced by some general remarks worthy of careful reading, having reference to the place at which and the manner in which the ligature should be applied, and the after-

treatment of the case. In the list of operations upon the abdominal aorta no mention is made of Watson's. Ligature of the common carotid is pronounced "a dangerous operation, and sometimes a difficult one, . . . only to be done when all other means of treatment are inapplicable, or have been found ineffectual, and for aneurism it ought not to be performed unless the treatment by digital compression has been rejected. Ligature of the subclavian in the first part of its course has been performed about seven times, but never with success; it is an unscientific as well as an unsuccessful operation, and for disease it is scarcely a justifiable proceeding; for a wound it may perhaps be entertained." We are surprised at Mr. Bryant's reporting ligatures as made "about" so many times; the actual number of accepted cases should be stated definitely. In point of fact, as Prof. Gross's table shows, twelve operations upon the first part of the subclavian have been made, all fatal. Mr. Bryant's colleague, Mr. Poland, reported the number at eleven in his table given in Guy's Hospital Reports. If our author questioned the correctness of the report of some of these cases, he should have stated how many, and whose he rejected. In ligaturing the external iliac, division of "the transversalis fascia the whole length of the wound is an unnecessary and dangerous proceeding." The common iliac is said to have been tied "about thirty-nine times." Ashhurst, two years ago, said forty-five times. Ligature of the common femoral is favourably considered on account of the success attending the operations of the Porters and Macnamara of Dublin; the propriety of its performance, however, is declared "a question requiring more experience before it can be decided."

Guthrie's method of ligating the posterior tibial is regarded with much less favour than that by division of the tibial origin of the soleus muscle; indeed the statement is made that "modern surgeons have universally rejected" the Guthrie method. That all modern surgeons have *not* done so, Mr. Bryant will be convinced by reading "Gross" and "Hamilton." We have ourselves made the operation four times on the living subject, and repeatedly on the cadaver, and know that, so far as we are concerned, the Guthrie operation is altogether the easier and more satisfactory.

In cases of wounds of veins, "when pressure is enough to arrest hemorrhage, the ligature is not required; when it fails or is inapplicable, the ligature may be fearlessly employed. The dread of setting up phlebitis by interfering with the veins is based on prejudice and not on practice; it is doubtless due to the influence of the authority of great names who have pronounced against it. . . . *Veins may be ligatured or twisted with impunity.*" (The italics are our own.) Respecting varicose veins it is declared, that

"General testimony also admits that this disease is as common in the higher ranks of life as in the lower; that it is as common in women as in men; that it is as frequent on the right side as on the left, and more frequently is found on both sides; that it is a disease of the young as much as of the middle aged; that it is found in the strong and healthy as in the feeble and cachectic; in fact, that it is found under every condition of life, and in every variety of subject. Some evidence exists that gout and hereditary predisposition are efficient causes, with local injuries and prolonged muscular exertion. . . . No special form of ulcer can be said to exist as the result of varicose veins, in fact there is no such thing as a 'varicose ulcer.' " The radical cure of varix "is to be thought of only when the vein is hopelessly deteriorated, or, as is so frequently the case, it is inflamed and painful and threatens to burst; it should be entertained only in cases in which all palliative and other treatment is inapplicable, or has failed."

Respecting the subjects of "Hernia," they are declared to belong more

largely to the working classes, because these latter constitute the greater part of any given population; there is in many cases an hereditary predisposition, "a third of all cases acknowledging a history of having a ruptured parent." This fact is not usually called attention to in any marked manner, yet, if it is a fact, it is as important as it is curious, and should be borne in mind by those having professional oversight of the families of the ruptured. Females are declared "as liable to inguinal hernia as they are to femoral, the inguinal being most common in early life, the femoral in middle and old age. . . . Before menstruation the femoral is so rare as to be almost unknown." Though it has long been known that inguinal hernia in the female is of not infrequent occurrence, yet a very considerable proportion of practitioners seem to altogether forget that such is the case, and have greatly less expectation of finding such a hernia in the female than femoral in the male. The general symptoms and treatment of reducible, irreducible, inflamed, and strangulated hernias are clearly and succinctly set forth. It is as usual advised to return the "inflamed and injured contents of a hernial sac into the abdominal cavity," Hutchinson's and Girard's belief that it is such return that usually gives rise to peritonitis, being declared "an assumption which the facts as hitherto known do not bear out."

Statistics are quoted clearly proving that "gangrene of the intestine and artificial anus are more common after femoral than inguinal hernia," and "that ulceration in the line of stricture with fecal extravasation is more frequent in inguinal than in femoral hernia, and that where it is found in the latter, it is generally from rupture of the bowel from forcible taxis."

The use of chloroform prior to the attempt to return the bowel by taxis is very highly recommended; "chloroform, taxis, and operation are the three great means of securing reduction upon which the surgeon ought successively to rely." When under chloroform the return of the protrusion is not quickly and easily effected, the persistent use of the taxis is strongly reprobated.

"As a rule, with the patient under chloroform, a hernia that is capable of being reduced by taxis goes up on the gentlest manipulation, and when this result does not take place, force will not only not succeed, but must prove injurious. . . . With the patient under chloroform a femoral hernia of average size, that of a walnut, should never be manipulated for more than two minutes. . . . In large femoral herniae, inguinal or umbilical, five minutes may possibly be allowed; but the quarter and half hours' manipulation that is too frequently talked about, is dangerous in the extreme."

It seems to us that the time permitted to be given to the taxis before proceeding to herniotomy is too short. Perhaps a little more latitude in this respect would save the necessity of operating in one-third of the cases of inguinal and two-thirds of the cases of femoral hernia, as Mr. Bryant says is necessary. There is an astonishing difference between eminent surgeons in the number of operations they make for strangulated hernia, the inguinal variety particularly, and it is by no means the fact that those who operate least frequently have the largest number of fatal cases. The operation itself, our author insists, and very properly too, should be performed while the patient is under the influence of the anæsthetic given to facilitate reduction by the taxis, delay being not only dangerous in itself, but also, to some extent, because it necessitates subjecting the patient to a risk, however slight it may be, in again producing anæsthesia. Mr. Bryant is a strong advocate of the "minor operation,"

*i. e.*, the freeing of the constriction without opening the sac, whenever by such operation the stricture is relieved.

"The surgeon who opens the sac in *every* case, clearly often does so unnecessarily. . . . So far as statistics go, or are of value towards the solution of this point, they are in favor of not opening the sac. . . . Whenever the *taxis* is *applicable* to a strangulated hernia and fails, herniotomy without opening the sac is applicable, and where reduction is effected nothing more is needed. Where reduction cannot be effected, or some doubtful piece of something remains in the sac, or the contents of the sac have not gone back with their normal rush, or the symptoms persist, or any doubt about the condition of the parts at the neck of the sack is raised, an exploration of the sac and its neck is absolutely necessary."

"Whenever the *taxis* is *inapplicable*, that is when the strangulation has been of so long a duration, the symptoms so severe, fecal vomiting so persistent, and local as well as general symptoms indicate the probability that the strangulated gut has died, or is dying; and whenever, during the application of the *taxis*, by the sudden collapse or yield of the tumour without its reduction, the fear is excited of some rupture of the bowel having taken place, herniotomy by the minor operation is inapplicable; the sac must be laid open and its contents dealt with."

Drawing down of the neck of the sac and introduction of the finger into the abdominal cavity under ordinary circumstances are pointedly condemned. We are pleased to see stress laid on encouraging the inactivity of the bowel after reduction either by *taxis* or operation. The young practitioner needs some strong backing in his opposition to the administration of cathartics so often urged, almost demanded, by patients and still more by friends.

Some space is devoted to "displaced herniæ," cases demanding the closest attention and readily overlooked or misunderstood. The great thing to be remembered with reference to them is, that, though seeming reduction has been effected, "the surgeon has failed to experience that sudden jerk so characteristic of the escape of the hernia," and "after the effects of the chloroform have passed away all the symptoms of strangulated bowel recur and perhaps with increased force. When this condition is found, there is but one form of practice to follow, and that is the exploration of the sac. The surgeon must then draw out the bowel from the sac through its false orifice, and, having freely divided the true neck or abdominal orifice of the sac, replace the intestine." The "radical cure" by invagination, since "even when the cure has been effected the wearing of a truss is still an essential point of practice," is pronounced "an operation that cannot be recommended." Wood's operation is considered ingenious and to be employed "when the radical cure is called for," though the necessity of wearing a pad for many months and always "when the patient is about to be subjected to violent strains or lifting," tends much to do away with the value of the operation.

"For my own part, I believe that where a hernia can be kept up by a truss, and the patient is likely to remain in a civilized country, where trusses can be obtained, any operation for the radical cure is an unjustifiable one; to risk the life of the patient on the theory of a cure, with the probability that the patient will be rendered less liable to its descent, when a truss has to be worn subsequent to the operation as a matter of safety, is a practical delusion."

In operating for femoral hernia the lifting up of a fold of skin and dividing it from within outwards is not advised, since it "is in a measure dangerous, for I have seen Mr. Key with the point of his knife divide all the tissues outside the sac and the sac itself in perforating the skin fold."

Attention is called to the fact, that in umbilical hernia the tumour always increases *downwards*; and when herniotomy is made and the sac opened, "it is an exceptional occurrence for any cure to follow, whereas when the sac is not opened, a good result may be looked for." While so much is said, and well said too, on the subject of hernia, no reference is made to the treatment by "pneumatic aspiration," though in the preceding chapter on "injuries of the abdomen," Mr. Bryant says that he has been "led to think that even in a large hernia its strangulation might be relieved by a like operation [tapping with fine trocar and canula], and a natural reduction take place," and in another place he says that "in one case I had to puncture the bowel with a trocar and canula, and draw off the air it contained before I succeeded [in reducing]. No harm followed this step, and the patient did well."

A short chapter is devoted to "trusses," and we doubt not that many patients in our own country would be much benefited if medical men would, as a rule, have an oversight of trusses, instead of, as is too often the case, leaving the whole matter in the hands of instrument-makers.

The section on "Diseases of the Urinary Organs" is introduced by a few paragraphs on the diseases of the kidneys, organs the healthy or unhealthy condition of which directly affects the prognosis, not only in surgical diseases of the bladder and urethra, but of all other parts of the body. As Mr. Bryant very truly says, "to the surgeon a thorough knowledge of renal pathology is as requisite as it is to the medical practitioner."

"Diseases of the Bladder" are next considered, and we notice that with reference to the severer forms of cystitis and vesical ulceration it is declared that "it is a question whether an incision into the bladder, as for lithotomy, would not be a sound practice, the urine then flowing away as secreted and a chance given to the bladder to recover itself; at any rate the operation would give relief." Such operation has been made, as by Batty, of Georgia, and in cases of cystitis in the female the establishment of a vesico-vaginal fistula is a recognized proper and valuable method of treatment. As a differential diagnostic sign between polypoid tumours and vascular growths of the bladder, there is given the usual absence and presence respectively of hemorrhage from the bladder. The sentence in which this is particularly brought out is one of those specimens of not overly-clear English of which there are many in the book. "In this point they [villous growths] differ widely from the polypoid tumours last considered, for in these haematuria is usually the first symptom that attracts notice, and the most persistent; indeed it is often the only one." Now to which shall a student understand "these" to refer, "polypoid tumours" standing nearest, or "they" more remote. Four chances out of five, if he had not carefully read what went before, he would conclude that it was in cases of polypoid tumours that early and persistent hemorrhages occurred.

"Incontinence in the child" our author thinks had best be treated by the *tr. ferri chloridi*, belladonna ranking next; chloral he has in many cases found useless. The mechanical methods of treatment, including that recommended by Sir Dominic Corrigan, he does not think well of, regarding them as "wrong in principle."

Respecting prostatic enlargements, the "bar consisting of the elastic structure and mucous membrane of the neck of the bladder," our author has "never known to be found," and gives it "only on the authority of the names quoted," viz., Guthrie, Mercier, and Thompson. The specific

gravity of normal urine is given as from 1020 to 1030, higher than we think it will be generally found. Every reader should feel the truth of the statement that "urinary deposits are not of themselves diseases, and are not to be dealt with as such; they are always to be accepted as indications of disease, functional or organic, in some of the working organs or other parts of the machinery of the body."

In the chapter on "Stone" the rule that has been by other surgeons so strongly insisted on is given, "to *hear* as well as to *feel* the stone." Respecting the comparative merit of lithotomy and lithotripsy, it is declared that "in *children* lithotomy ought to be the rule, lithotripsy the exception. In *adults* lithotripsy ought to be the rule and lithotomy the exception." If renal disease exists, the cutting rather than the crushing operation should be resorted to, especially if there are associated bladder complications. The recent case of Louis Napoleon is likely to give rise to no little discussion upon this very subject. Preferring lithotripsy under ordinary circumstances in adult patients labouring under stone, Mr. Bryant enters at some length into the consideration of the two methods of its performance, the "English" in which the stone is made to fall into the grasp of the instrument, and the "Civiale" in which the calculus is picked up with the instrument, the former being the one which he has most usually adopted. He states that he has on several occasions successfully crushed at a single sitting stones "upwards of an inch in diameter." The particular lithotrite to be employed is regarded as a matter of much less importance than perfect familiarity with the instrument employed, "no surgeon being justified in attempting to crush a stone in the bladder of a living patient until by practice he has learned to have perfect command over the instrument he has to employ, and a thorough knowledge of its capabilities." Of the various lithotomy-operations preference is given to the lateral, and the lateral after the method of Aston Key, statistics being given which are considered by the author as proving the greater safety and success of this method. It is declared that at Guy's "during the last fourteen years seventy patients have been cut consecutively without a death." The introduction of a gum-elastic tube after the operation, and its retention for a couple of days, is said to be "quite unnecessary."

Respecting pelvic cellulitis and peritonitis, it is declared "an open question as to how far the renal disease or the operation is the cause." Calculus in the female is to be removed by rapid dilatation when this is practicable, in other cases by lithotripsy unless the bladder is "too contracted, inflamed, or ulcerated," in which latter conditions vaginal lithotomy is to be performed and the opening subsequently closed by sutures. "Slow dilatation of the urethra is to be avoided and all urethral lithotomy condemned."

Of strictures of the urethra, "at least half the cases are found in subjects who have not suffered from gonorrhœa, and when gonorrhœa might be put down as an assigned cause, the use of injections for its cure does not appear to have had any positively injurious influence in producing a stricture." The "tour de maître" mode of passing the catheter "is named only to be condemned; in the hands of a skilled surgeon it may be done with impunity, but in those of an inexperienced man it is fraught with danger."

In the treatment of strictures gradual dilatation is preferred, and that by retained catheters of gradually increased calibre. The "immediate treatment" is not apparently a favourite with Mr. Bryant, who considers

it no more reliable than gradual dilatation, and more likely to be followed by "bad and even fatal effects." Laminaria stalks are regarded as dangerous, and not to be employed in perineal strictures. "Internal urethrotomy, except for strictures at the orifice of the urethra and within the penis, is not an operation for which much can be said." After external urethrotomy, the keeping in of a catheter is, Mr. Bryant is "somewhat disposed to think, hardly needed; . . . but more experience is called for before the omission of its use can be recommended." It is so recommended by some of our surgeons most familiar with strictures and their treatment. Mr. Cock's method of making perineal section is preferred to all others. It seems to us that in many cases the old operation is decidedly the better one, since a new urethral canal is formed, and neither a perineal fistula nor "a complete bar to procreation" must be the result. We have, in a case of, to us, impermeable stricture, made a new channel over an inch long, through which the patient after the healing of the wound readily and regularly passed a No. 12 sound.

Of the various causes of death from stricture the chief one is renal disease, and it is remarked that "every person the subject of renal disease stands, as it were, on the edge of a precipice, and the slightest adverse wind may send him down." The existence of "true spasmoid stricture" is admitted.

"Of 129 examples of retention from simple organic stricture, 109 were successfully treated by means of catheterism, warm baths, and opium; and in 20 cases only, or in 15.8 per cent., were any other operative measures called into requisition. In all of these 20 examples, the bladder was punctured per rectum, with complete success." This latter operation is, as usual, the one recommended. No mention is made of supra-pubic aspiration which has lately been reported as highly successful, and at the same time altogether devoid of danger and able to be repeated again and again with perfect safety.

Brief notice must be taken of certain other points which have attracted our attention. Among the comparatively new things in surgical practice are skin-grafting, pneumatic aspiration, antiseptic dressings, and the therapeutical applications of electricity. The first is declared a very valuable method of treating large ulcers, "its adoption rendering many cases curable that were not so previously, facilitating the cure of as many more, and giving interest to a class of cases that had formerly but little." Small pieces of skin are decidedly preferred, and it is directed that they be placed near the margins of the sore rather than in its centre. Taking the grafts from another individual is regarded as very objectionable "from the risk that is necessarily run of introducing into the blood of the living subject some new or poisonous element." It seems to be believed by our author that the cicatricial tissue resulting from the skin-grafting is more liable to "break down and ulcerate" than the old skin, which is very probable.

Pneumatic aspiration is favourably spoken of in the paragraphs on tapping of the chest, of hydatid tumours, and of serous cysts.

The antiseptic treatment is brought before the reader in several paragraphs, largely in Mr. Lister's own words, Mr. Bryant declaring himself, "no convert as yet to the theory upon which it is based, nor to the great value of the special practice based upon it; neither is yet proved." The use of carbolized catgut ligatures is several times referred to, and mention is made of the entire disappearance within twelve months of such a ligature

applied to a pedicle dropped back into the abdominal cavity after ovariotomy.

So far as we have noticed, no reference is made to the use of electricity in the treatment of tumours or organic strictures; we have already quoted what is said respecting its employment in cases of aneurism; in hydatid tumours we find that it "should certainly be employed when simple tapping fails to cure."

In the chapter on "Fractures," the immovable dressing is favourably spoken of, and special attention is called to the "Bavarian" plaster dressing, which is pronounced "by far the best immovable apparatus we possess, as good for joint cases as for those of fracture." Our own experience in its use leads us to fully coincide with these views.

In the chapter on "Elephantiasis," it is stated that "in some cases, if not in all, where the main artery of the limb is ligatured and the vascular supply to the disease cut off, a recovery takes place." It would appear from the investigations of M. Marduel, that there is much reason to fear in such cases that the recovery will not prove a permanent one.

Of the various anæsthetic agents in use, chloroform, and a mixture of chloroform, ether, and alcohol, are evidently preferred by our author. He quotes approvingly Perrin's statement, that the "honor of the first public and authentic trial of surgical anæsthesia, by the aid of means newly discovered, belongs entirely to an obscure dentist, Horace Wells, of Hartford, Connecticut.

It is gratifying to our national pride to find an English writer making so many references to American surgeons as there are in the work under review. At least fifty-five of our surgeons, dead and living, are mentioned by name, and their papers or cases referred to. As might have been expected, some mistakes in names and places have been made. For example, Dr. Onderdonk, who first employed ligation as an antiphlogistic agent, is called Dr. Onderdant; the name of Dr. Hodges, of Boston, appears in several places as Hodge; that of Dr. Lidell, as Liddell; that of Dr. Speir, as Speirs; that of Dr. Detmold, as Detmolds; Dr. Nathan R. Smith, of Baltimore, is spoken of as Nathan Smith, of New York. Mistakes are also made in the names of journals; the "Medical Record" is in one place called the "Medical Mirror," and at least twice the "American Journal of the Medical Sciences" is called the "American Quarterly."

The national pride, to which we have just referred, is not so much gratified in finding the name of Lizars preceding that of McDowell in the list of the "earliest practical promoters" of ovariotomy.

Of the value of the work as a literary production we need not speak. It might have been written in better English, but it is with the matter not the manner that we are particularly concerned. Mr. Bryant is to be thanked for having given us a large number of new illustrations, representations chiefly of specimens in the museum of Guy's Hospital. There is some hope that we may, in time, be no longer vexed with the sight of those old stock engravings that have been constantly on duty for the last twenty years or more.

With this "Practice of Surgery" we are much pleased, and commend it to the notice of students and practitioners as a work containing a great deal of information respecting the diagnosis and treatment of surgical diseases and injuries. We have no hesitancy in recommending it as one of the best of the less than half a dozen works from which the student should select his text-book in surgery.

P. S. C.

ART. XV.—*Traité de Pathologie Interne.* Par S. JACCOUD, Professeur Agrégé à la Faculté de Médecine de Paris, Médecin de l'Hôpital Lariboisière, etc. etc. (Ouvrage accompagné de figures et planches en chromolithographie.) Tome second. 8vo. pp. 892. Paris : Adrien Delahaye, 1871.

*A Treatise on Medical Pathology.* By S. JACCOUD, Professor Agrégé at the School of Medicine of Paris, etc. etc.

THE second volume of M. Jaccoud's *Treatise on Medical Pathology* fully sustains the favourable opinion which we expressed in a review, written for the July number of this Journal, for 1871, of that portion of the work which had at that time appeared. It completes the work, and consequently the diseases discussed in it are necessarily those which were not reached in the first volume. It comprises diseases of the organs of respiration ; diseases of the digestive tract, including those of the liver ; diseases of the kidneys and bladder ; diseases of the organs of locomotion, under which head M. Jaccoud treats of gout, rheumatism, and rachitis ; general diseases ; zoonoses ; and *dystrophies constitutionnelles*. Under the last term are classed several diseases, not usually grouped together, as, for example, diabetes and chlorosis, purpura and Addison's disease. The zoonoses are of course diseases derived from animals, and include glanders and hydrophobia.

The author, while a firm believer in what is known as the expiratory theory of the origin of emphysema, except in the rare instances in which this condition is developed in the immediate neighbourhood of collapsed lobules of the lungs, holds that dilatation of the air-cells can rarely take place, no matter how powerful the exciting cause, unless there be a defect in the nutrition of the part. This defect is not unfrequently derived from parents similarly affected, as has been also shown by the researches of Dr. Jackson, of Boston, but it may in other and unquestionably the greater number of cases be acquired as the result of frequent attacks of bronchitis. In the treatment of this troublesome condition M. Jaccoud has not found any medicines to be of positive service, except of course those which have a tendency to allay attacks of intercurrent bronchitis and to sustain the strength of the patient. Strychnia has been given in the hope of causing a contraction of the air-cells, but its administration has not been found to be attended with so desirable a result, and a like failure has occurred when an attempt has been made to increase the power of the muscles of expiration by gymnastic exercises which call these muscles into play. Baths of compressed air have, on the contrary, according to the author, produced an amelioration of many of the most distressing symptoms, and so has the inhalation of oxygen.

The chapters on œdema and congestion of the lungs contain nothing that it is necessary to call attention to, and the same may be said of that on the different conditions which give rise to hæmoptysis. We find, however, a distinct admission from the author that pulmonary hemorrhage is among the causes of *pneumonie cascéeuse consumptive*, or, as we would call it, cheesy pneumonia, which is nothing more or less than phthisis. This relation between pulmonary hemorrhage and consumption was, it will be remembered, asserted by the late distinguished Professor Niemeyer to be a not infrequent one, but it was well known long before the publication of this distinguished physician's views, although it is undoubtedly largely

owing to him that it has become so familiar to students of the present time. Even so old a writer as Dr. R. Morton, whose Treatise on Consumption was published in 1694, calls attention to it in language, rather quaint, it is true, but which, if it means anything, indicates the writer's belief that the blood which remains in the air-cells and minute bronchi after a hemorrhage is occasionally capable of exciting irritation and inflammation of the tissues immediately adjacent to the seat of extravasation. The author also ranges himself on the side of Niemeyer in stating that, in the great majority of cases, phthisis pulmonalis has arisen as the result of the caseous degeneration of the products of a previous inflammation of the lungs. This position he maintains by referring to some statistics published by Slavjansky. This observer, from a careful examination of the lungs of 139 consumptives, reached the conclusion that in 123 of them the disease owed its origin to pneumonia, and in only 16 to tubercular deposit. The frequent coexistence of miliary tubercles with caseous degeneration of the lung he also admits, as well as the probable dependence of the former upon the latter, although he is unable to explain its nature. He goes beyond some of the recent German pathologists in believing that the miliary tubercles are themselves the result of inflammation, for he says the structure of the granulation reveals its origin. It is a cellular growth and consequently the result of an irritative process, analogous, if not identical with inflammation. The irritation is usually latent in the mode of its approach, and chronic in its course, because it is at first circumscribed, and extends only gradually, but it may be occasionally general, and abrupt in its onset, and in these cases it gives rise to the well-marked symptoms of an acute disease. The analogy between tubercles and inflammatory exudations disproves at the same time the theory of epigenesis proposed by Laennec and that of heteromorphism. In fact, no matter what histogenetic theory may be adopted, it is impossible at the present time to regard tubercles as anything else than either the result of an exudation which is degenerated and incapable of organization, or an imperfect cellular formation. Moreover, the exudation or the cellular formation is nothing more than the final effort of irritative action. The subject of phthisis in its relation to the modern views of its origin has been so frequently and fully discussed recently in our pages that we will not weary our readers by a repetition of opinions with which they must be by this time thoroughly familiar. The chapters on this disease will be found fully up to the times and well worthy of an attentive perusal.

The author having treated of catarrhal pneumonia in the first volume, the croupal and interstitial forms of the disease are only referred to in this. Inasmuch as the description of the symptoms and course of the former do not differ essentially from that usually given in the text-books, we shall call attention only to the author's views on its treatment. Holding that the disease is as much a self-limited one as smallpox or measles, he recommends that no attempt should be made to cut it short, but directs his treatment mainly towards mitigating the severity of the prominent symptoms. The intensity of the fever is to be diminished by the administration of digitalis, or tartar emetic. The former, which is less likely to give rise to vomiting than the latter, and is therefore preferable, he prefers to give in infusion. The dyspnoea is to be combated by means of general or local depletion; the former is of course to be employed only when the symptom is urgent and the patient robust. As soon as indications of debility present themselves, they are to be met by the administration of tonics and stimulants. When the physical signs

denote the commencement of resolution, an attempt should be made to hasten this by the application of blisters and by the exhibition of expectorants. In the indurated form of chronic pneumonia large doses of iodide of potassium are recommended, and in the caseous form those remedies are to be employed which afford a reasonable hope that they may be efficacious in averting phthisis from the patient.

A very similar treatment is recommended by M. Jaccond in pleurisy. There is, however, in this disease a good deal of pain, and this will occasionally need the hypodermic use of morphia for its removal. In regard to thoracentesis he says this operation is to be employed, not only whenever the effusion has become chronic and medicines seem incapable of promoting absorption, but also, no matter what the stage of the disease, whenever the patient seems to be threatened with suffocation in consequence of the abundance of the effusion.

Many of our readers will probably dissent from the view of the nature of diphtheria which the author expresses. In this country, if we mistake not, this disease is generally classed among constitutional maladies, having certain prominent local symptoms. The author, on the contrary, regards it as a purely local disease, in which general symptoms may or may not occur, and in which death, when it occurs, is more frequently due to a mechanical interference with the respiration than to blood poisoning. While admitting its occasional origin *de novo*, he holds that in the greater number of instances it arises from contagion, either as a consequence of direct inoculation, or as the result of the transmission through the atmosphere of the contagious principle, whatever this may be, by means of spores. This view of the nature of the disease utterly fails to account for those cases which occasionally occur during the prevalence of an epidemic, and in which there is a marked disproportion between the severity of the local and general symptoms, or in which the local symptoms are wholly absent.

The treatment recommended consists in the administration of tonics and in the application of topical remedies to the throat; more reliance than is usual being placed upon the latter.

Although a good deal of space is devoted to the discussion of diseases of the stomach, dyspepsia is not separately considered, this condition being rightly held to be common to many diseases, and dependent very frequently upon chronic inflammation. The importance, therefore, of preventing from becoming chronic the condition known in this country as biliousness, and in France as *embarras gastrique*, in which a moderate degree of inflammation of the stomach exists, is very properly indicated. An emetic of ipecacuanha given at the commencement of these attacks will generally set them aside, and the author takes occasion both here and elsewhere to speak of the value of emetics in the treatment of various diseases. In speaking of gastralgie the author says that he believes the pain in this affection is often dependent upon compression of the solar plexus and of the abdominal sympathetic nerve, and reports the case of a man in whom gastralgie had existed for many years rebellious to all forms of treatment. It was found that the pain was increased whenever a varicocele from which the patient suffered diminished in size, and that it was relieved if the blood was allowed to flow back into the tumour. It is clear, he says, that the pressure in the abdominal veins was suddenly increased at the moment the blood from the varicocele flowed into them, and, inasmuch as these vessels are varicose and the circulation in them is

sluggish, a persistent congestion results by which these nerves are as effectually compressed as they would be by a tumour. The writer of this notice believes that pressure upon those nerves is not an infrequent cause of gastralgia. In a case which he reported in the number of the *Philadelphia Medical Times* for October 16, 1872, and in which certain external glands were found to be very much enlarged, he ventured during the life of the patient to assert that the pain was due to pressure exercised by enlarged glands within the abdomen, and the autopsy subsequently showed the correctness of this opinion. The author makes no allusion to the fact that inflammatory adhesion between the different abdominal viscera often gives rise to intense pain, which is not infrequently mistaken for gastralgia.

The chapters on diseases of the intestines are carefully written, but our limits will not allow us to present our readers with an analysis of them. The form of disease which has been recently called "Mucus Disease" is considered simply as a variety of chronic enteritis, with a tendency to the formation of false membrane, and no specific directions are given for its treatment.

Diseases of the liver are considered next to those of the intestines. The several forms of inflammation, cancer, and parasitic diseases of this organ are described, but we miss a chapter on jaundice, and we have not been able to find elsewhere a distinct statement of the author's views as to the causes of this condition. As in the case of dyspepsia much that would have been said in such a chapter is scattered throughout other parts of the book, but it does not seem to us that the subject has received at the hands of M. Jaccoud the consideration that its great importance demands.

The author, in alluding to Bright's researches, says that diseases characterized by persistent albuminuria, a particular form of dropsy, and by an atrophic lesion of the kidneys, were formerly comprehended in the term Bright's disease. Recent investigations have shown, he says, that the lesion of the kidneys is not always the same, but he believes that to constitute Bright's disease, there must be persistent albuminuria and dropsy. He therefore excludes these cases of sclerosis of the kidneys in which the urine contains little or no albumen, and in which there is no œdema of the legs, in this respect differing from Dickinson and Grainger Stewart, and, in truth, from authors generally.

There are, according to M. Jaccoud, four forms of Bright's disease, as follows: 1. Chronic Congestion, such as occurs in heart disease. 2. Diffuse—or Parenchymatous Nephritis. 3. Amyloid Degeneration. 4. Sclerosis. In addition to these he recognizes a form of renal disease which he calls Catarrhal Nephritis. This, although it gives rise to an albuminous condition of the urine, he does not consider to be a form of Bright's disease, because the albuminuria is not persistent and because it has a tendency to recovery. This is unquestionably true—but it would be very difficult to point out at the start any distinguishing characteristic between those cases which get well and those which pass into the condition which he calls parenchymatous nephritis. In the latter disease the lesions are most marked in the tubular portion of the kidney and seem to be such as would naturally result from an exaggeration or long continuance of the changes noticed in the simpler form. The treatment for Bright's disease recommended by the author does not differ from that usually employed in this country. We find, however, a suggestion which may have a practical value, and therefore give it: Wundt found that

albumen will appear in the urine if the food contains no chloride of sodium, and Hartner, that a temporary albuminuria is produced by the injection of pure water into the veins, but that no such result follows the similar use of a saline solution. Semmola has in view of these facts proposed the administration of chloride of sodium in large doses in the management of cases of albuminuria. The remedy may be given in milk, which should be the patient's only food, and is said in this way to be very acceptable. At the end of a short time, the author says, if the milk is pure, the albumen will be found to have disappeared from the urine, and the patient may be allowed a small quantity of albuminous food. The author also recommends arsenic, which he believes to have a favourable action on the assimilation of the albuminoids. The inhalations of oxygen are also favourably mentioned.

Some experiments of Semmola are also referred to, which, we think, are of sufficient interest to lay before our readers in detail, especially as they have not yet been published elsewhere. This distinguished observer had under his care a male patient in the acute stage of Bright's disease, from whom he took three ounces of blood. The serum of this blood was collected, and twelve grammes of it were injected into the jugular vein of a dog, who had previously been bled to the extent of twelve grammes. The urine of the dog became albuminous within two hours, showing that the albumen of the patient's blood was in a condition unfit for assimilation. Thirty-five days later, when the patient had entirely recovered, Semmola again took a small quantity of blood from him, and, collecting the serum, repeated the injection into the jugular vein of the dog; but, although it was, of course, carefully sought for, no trace of albumen in the urine could be found, from which the experimenter concludes that the albumen of the first serum was altered and incapable of assimilation, while that of the second had become, in consequence of the recovery of the patient, entirely assimilable. Blood was also taken from dogs whose urine had been rendered albuminous by causing an arrest of the functions of the skin, and injected into the jugular veins of other dogs, with the effect of producing temporary albuminuria in the latter. These experiments demonstrate, in M. Jaccoud's opinion, 1. The reality of the molecular modification of the albumen of the blood in Bright's disease. 2. The influence of these modifications on the filtration of this substance through the membranes of the kidney and on its passage into the urine.

We do not find anything to notice in the chapter on rheumatism, except that tartar emetic is recommended in its treatment, and that favourable results are asserted to have followed its use in large doses. Unquestionably certain of the symptoms of the articular form of the disease may be relieved by the drug, but the profound depression which it often causes, together with the subsequent anæmia, are sufficient contraindications of its use.

The zymotic diseases receive a full share of attention. It is true that the space devoted to the consideration of malarial diseases may seem, to the American physician, disproportionately small, but it should be recollected that these diseases, although undoubtedly important, are not of such frequent occurrence in France as in our own country, and, therefore, in a practical text-book, intended principally for French students, do not require the same elaborate description. The author manifests, however, a very thorough acquaintance with the literature of the subject,

and the treatment which he recommends is such as has been found more useful in countries where malarial influences prevail. The chapter on Asiatic cholera is a very instructive one, but want of space prevents us from noticing it in detail. M. Jaccoud is evidently not a convert to the views of Johnson as to the proper treatment of this disease, for he holds that the safety of the patient depends upon the checking of the discharges, and, therefore, counsels the employment of opium and aromatics. In some cases, it is true, he prescribes calomel, but only in grain doses, and at such intervals that it is hardly likely to act as a purgative. It may, perhaps, strike some of our readers as rather strange that the author does not think it worth while to give directions as to the best means of preventing pitting in smallpox.

No allusion is made to typhus fever, except under the head of diagnosis in the chapter on typhoid fever. This is an important omission, and the fact that the disease is rare in France scarcely justifies it. The lesions of typhoid fever are especially well described. These are said to be much more generally diffused throughout the organism than is generally admitted by writers on fevers. "In fact," to quote the author's own words, "the *typhoid neoplasia* has been seen in the stomach, in the large and small intestines (not only in the solitary and agminated glands, but in the connective tissue of the mucous membrane lying between these in the submucous layer, and in the muscular and serous coats), in the spleen, in the kidneys (especially in the cortical part), in the lymphatic glands of the mesentery and of the mesocolon. It has been found once in the mucous membrane of the urinary tract, and once by Wagner, in the serous membrane, forming the pouch of Douglass." In the liver the cellular hyperplasia gives rise to collections of cells and nuclei, precisely similar to those found in the glands of the intestines.

Our notice has already reached a greater length than we originally intended, and we must, therefore, close it with a few general remarks. We said in the review of the first volume that the work was one of the best on the practice of medicine with which we were acquainted, and we see in the second volume no reason to modify our opinion. There are some subjects, it is true, not so fully discussed as would seem desirable to the American student, but the book has points of excellence which render it exceedingly valuable to him. One of these is the very full bibliography which is appended to every chapter, and to which we have already drawn attention. The methods of treatment recommended differ in many instances from those generally employed in this country, and the practitioner, who is too busy to read monographs, will find the part of the work devoted to therapeutics replete with useful hints.

J. H. H.

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ART. XVI.—*Illustrations of the Influence of the Mind upon the Body in Health and Disease, designed to elucidate the action of the Imagination.* By DANIEL HACK TUKE, M.D., M.R.C.P. 8vo. pp. 415. Philadelphia: Henry C. Lea, 1873.

THE author of this volume bears a name that has long been dear to all who had the welfare of the insane at heart. Three generations have made it illustrious by signal efforts to increase their comfort, or advance our knowledge of their disease. Simultaneously with Pinel in France, though

without any thought of each other's movements, the great-grandfather of the present author entered upon that noble enterprise whose earliest successes consisted in knocking off the chains of the maniac, and establishing an asylum free from all means and appliances but those of gentleness and good-will. Thus was the name forever associated with that great reform in the management of the insane which will ever be regarded as marking an epoch in the history of humanity. Among the reminiscences of a foreign excursion, in one of those intervals of rest that occasionally fall to the lot of the professional man, none is invested with pleasanter associations than that of an autumnal evening when, amid a little circle gathered around the cheerful fire, the father of our author related in his delightful way the various incidents that fixed the attention of a few Friends on the condition of the insane, and the successful steps that ended in an institution where, for the first time in England, the insane were treated as if they still possessed most of the attributes of humanity, and their restoration promoted by methods of kindness and courtesy, by mental and bodily exercises. No one did more in his time to perpetuate this blessed revolution than the speaker himself. Prepared by close and careful observation of the insane, and endowed with a clear insight that enabled him to see things precisely as they are, stripped of all delusive accompaniments, he published an admirable treatise in connection with Jacobi's work on the Construction of Hospitals, where he pointed out the path in which all healthful progress must lie. Not one of the least of the benefits conferred by him on the cause for which he thought and laboured so well was that of a son, the author of the book before us, who has already achieved distinction in the literature of our profession. In conjunction with Dr. Bucknill he produced a treatise on insanity, which, in many respects, is not likely soon to be excelled.

In the book now given us are brought together those facts illustrative of the influence of the mind upon the body, which are scattered about in every variety of book, pamphlet, and periodical, and classified by a bond of association indicative of their common physiological and pathological relations. It is something more than a mere encyclopaedic gathering of insulated facts, for the author has endeavoured by means of that sagacity which sees a meaning in things beyond that which lies on the surface, to show in certain anatomical and physiological arrangements a stretch of action not before very thoroughly appreciated. He has thus done the reader the service not only of bringing before him a multitude of facts, otherwise beyond his reach, but of putting him on the track of a fruitful investigation. The magnitude of the latter service will be fully perceived only when we consider that facts of this character have been generally regarded in the light of curious occurrences having little relation to anything else, and leading to no philosophical methods of treatment. If the doctor prescribed bread pills, it was almost at hap-hazard, as a last resort, and with as much surprise at any good result as if he had drawn a prize in a lottery. If the value of our acquisitions consists less in the number of truths we bring to light than in that of the relations we discover between them, then certainly our author is entitled to no small praise. If his readers are made to see a new significance in many an old truth, and many a dark path of inquiry illuminated with a brighter light, they gain more than they would by a flood of fresh discoveries.

Dr. Tuke considers his subject under three general heads, viz., the influence of the intellect on sensation, on the voluntary and involuntary muscles, and on the organic functions; secondly, the influence of the emotions; and,

thirdly, the influence of the will, in the same direction. A supplementary chapter is given to the influence of the mind upon the body in the cure of disease. Our purpose is only to indicate the general course of inquiry and glance at a few of the facts, not with the design of giving the reader an abstract of the book, but of inducing him to read it himself.

The key to many of the phenomena included under the first head—and it may, perhaps, have a wider application—may be found in an utterance of John Hunter, who said, “I am confident that I can fix my attention to any part until I have a sensation in that part.” This intimate relation between the ideational and sensational movements explains a multitude of facts, so far as their reference to a common cause explains them. Four gentlemen, having laid their arms on a table with the palms of their hands upwards, were requested each to look with fixed attention and entire silence into the palm of his hand, and mark the result. “In about five minutes, the first, one of the present members of the Royal Academy, stated that he felt a sensation of great cold in the hand; another, who is a very talented author, said that for some time he thought nothing was going to happen, but at last a darting, pricking sensation took place from the palm of the hand, as if electric sparks were being drawn from it; the third gentleman, lately mayor of a large borough, said he felt a very uncomfortable sensation of heat come over his hand; the fourth, secretary to an important association, had become rigidly cataleptic, his arm being firmly fixed to the table.” (p. 44, quoted from Braid.) Thus is signified in its normal conditions the relation between the hemispheres and the sensory ganglia—a relation that is manifested in various ways, its peculiarity in those experiments consisting in the fact that the ordinary course of the nervous current was reversed. Where the thought precedes the impression instead of succeeding it, as it ordinarily does, the latter will more readily be produced the more definite and intensely conceived the former. Thus, in a *séance* with Reichenbach the mind is possessed with the idea of seeing the odic lights, and presently the space is filled with luminous balls. In the stillness of night, who has not heard the sounds he expected or dreaded to hear, and discerned dimly, but surely for the moment, the shadowy images of persons and things strongly conceived—projected outwardly, as it were, from within? This phenomenon of seeing with the bodily eye and hearing with the bodily ear what may have no outward existence was illustrated in Sir Joshua Reynolds, to whom after painting for some hours, and then going into the streets, the lamp-posts would seem to be trees; and in Dr. Johnson, who would hear his mother calling him, “Sam, Sam,” when miles away; and in Dickens, who heard his characters talk as distinctly as if they had been endowed with tongues. Let the vital action of the organs be quickened by morbid influences, and we have the same phenomenon in a more remarkable shape. Sir Isaac Newton, after looking at the sun in a mirror, found to his surprise and embarrassment, that the spectrum would return, even when in the dark. A patient of the writer, when suffering from a cold or other febrile disturbance affecting the head, was always visited in the morning, while preparing to rise, by a spectral woman who approached the foot of the bed and looked earnestly at her. Recently, she has seen the images of her friends and acquaintances near her. Such cases show that the special activity always implied in perception, may sometimes, even without the aid of any outward impression, be propagated through every portion of the structure concerned in the process, the result being the same wherever the initiatory movement begins.

The influence of the intellect on the voluntary muscles is illustrated by the common fact of the working of the facial and other muscles when the mind is profoundly occupied. It is this relation established by nature which constitutes the ground-work of the actor's art. Another phase of it is exhibited in those unfortunate mortals who are prone to give unconscious utterance to their most secret thoughts. Dr. Tuke finds another instance of this relation in the old experiment of discovering the time of day, by holding a coin or ring by a hair or silk suspended between the finger and thumb in a glass, against the sides of which it is expected to beat the time of day. And this experiment, he says, often proves successful, the unconscious action of the digital muscles responding to the Idea or Expectation present in the mind. An analogous case is furnished by the divining rod. Carried along as it is, a fork tightly grasped in each hand, while the mind is wrought up to the highest pitch of attention, it will deflect from its upright position, not on account of water beneath the ground, but in consequence of the unconscious action of the muscles of the hand, in obedience to the dominant thought.

Under the name of sympathy, the same phenomenon may be observed in many curious forms. We well recollect that when gymnastics were first introduced into this country, many ladies who witnessed the public exhibitions of the pupils for the first time, found themselves, the next day, scarcely less stiff and painful than the young men were. This kind of sympathy is most strongly manifested where it is favoured by the presence of some morbid element. The epileptic may be seized with a fit, even long after the fits had ceased, on seeing or hearing something closely associated with the occurrence of the first fit; and everybody knows how liable hysteria is to be propagated by those who witness its attacks. The student of medical history will call to mind those famous occasions in the 14th and 15th centuries where the operation of this principle was exhibited on the largest scale in convents, or under strong religious influences. History furnishes us with no better accredited fact than are the accounts given to us of the scenes in the cemetery of St. Medard, where scores of people had only to lie down on the tomb of a well-known Abbé, to be thrown instantly into violent convulsions. Lying down on the marble with the image of one of these cases strongly pictured on the mind, and believing that the same scene would certainly be repeated in themselves, by force of some miraculous power, it was but the next and a very short step to the actual development of the wondrous affection. These things show the capacity of the nervous system for good or for ill, though we are slow to learn, to its full extent, the lessons which they teach. Though obliged by force of authority to believe their historical accuracy, we are too much disposed to treat them as anomalous, extraordinary instances, curious, no doubt, but useless for any practical purpose. Our not very remote descendants, we venture to say, will regard the nervous system as holding a position in the economy both of health and disease far more important than that which we have been accustomed to assign to it.

In connection with this branch of the inquiry, though seemingly not strictly belonging to it, a case is related on Prof. Christison's authority, which is worth a moment's attention, because it shows a kind and degree of independence between certain mental faculties, which some contemporary psychologists are loath to admit. A gentleman frequently could not execute what he willed to perform. Often on endeavouring to undress it was two hours before he could get off his coat, all his mental faculties, *volition excepted*, being unimpaired. On one occasion, having ordered a

glass of water, it was presented to him on a tray, but he could not take it, though anxious to do so, and he kept the servant standing before him for half an hour, when the obstruction was overcome. Another analogous case is related of a person who, when walking in the street, would be stopped by a gap in the line of houses, his will suddenly becoming inoperative. Crossing the street was also very difficult. Both these gentlemen graphically described their feelings to be "as if another person had taken possession of their will." Was it not a derangement of the will, or, to put it in another shape, a derangement of that part of the cerebral structure with which the will is connected, temporary, perhaps, but none the less abnormal—in short, a moral insanity?

Medical men have always been impressed with the influence of the Intellect on the involuntary muscles and organic functions. The action of the heart, the bloodvessels, stomach, bowels, bladder, are all within its reach. Who has not suspected, in a cholera visitation, that some cases of this disease were actually provoked by having the attention constantly directed to the bowels, and apprehensions excited by every unusual sensation. A friend of the writer could never witness the act of vomiting without being strongly moved to the same performance himself. Our author relates that the house surgeon of a hospital, by way of experiment, gave to a hundred patients a draught of sugared water, and then in great alarm pretended to have inadvertently given them an emetic. The result was that four-fifths of them became unmistakably sick. A more beneficent operation of the same law appeared in the case of the doctor, who, when constipated, had only to put his dose of salts by his bedside to experience its full benefit before morning. Let the physician avail himself of such facts as these, to increase the potency of his drugs by assuring his patient that he may expect from them certain effects, due regard being had, of course, to the nature of the disease and the nervous constitution of the patient.

The effect of nervous excitement and mental exercise on the organic functions, especially the secretions, has recently attracted some attention, which, if the following statement of Liebig be true, may lead to valuable results. "Every conception," he says, "every mental affection, is followed by changes in the chemical nature of the secreted fluids; and every thought, every sensation, is accompanied by a change in the composition of substance of the brain."

The chapter on the influence of the emotions on the sensations presents us with a large amount of material well calculated to excite an intelligent curiosity. Without insisting on a very well-marked line of division between the intellect and the emotions, Dr. T. thinks the distinction is clear enough for all practical purposes, and that the latter are more intimately connected with the sensory ganglia, especially the medulla oblongata, than with the hemispheres. His starting point is that "emotional impulses may act upon the sensory ganglia and nuclei of the nerves of sensation, so as to produce any of those sensations which are ordinarily induced by impressions upon their periphery; such sensations, although central, being referred by the mind to the peripheral termination of the nerve." (p. 128.) The result appears in the shape of ordinary sensations, of excessive and morbid ones, or of suspended sensation. Anæsthesia in connection with hysteria is a common phenomenon. The Convulsionaires of St. Medard stood the infliction of every kind of violence short of mutilation without manifesting any token of pain. During the excitement of battle, the soldier may suffer the severest wounds unconscious

of the fact. And the opposite effect may be produced under the influence of strong emotion. A person may imagine not only that he has sustained most grievous wounds and injuries, but may feel all the pain they would naturally cause.

The influence of emotions on the voluntary muscles is manifested by regular contraction and relaxation; by irregular contraction and relaxation, or spasms and convulsions; and by loss of power, or paralysis. The first of these results have been described by anatomists and artists. The others abound in the experience of the pathologist and practitioner, though we suspect our author assigns a wider scope to the operation of this principle than can be strictly justified, when he includes among its effects, "all convulsive attacks, whether epileptic or not, whether infantile, puerperal, or hysterical, trembling palsy, spasms of the larynx and pharynx, nervous hydrophobia, and tetanus." (p. 169.) That epilepsy may be produced in this way, we know by frequent observation, and it is one of the mysteries of this mysterious disease that is caused by incidents so diverse in their nature. The fact that it may spring from a fright or a fall, from a mouthful of indigestible food or the receipt of bad news, from unusual efforts of body or of mind, remains unaccounted for in the prevailing theories respecting its pathology.

Dr. T. distinctly recognizes both the physical and the psychical origin of hysteria, holding that "all physical phenomena (including irregular movements) which can be induced by reflex action from the irritation of a bodily organ, can also be induced by central cerebral irritation, then, even if we agree with those who define hysteria as 'a reflex neurosis dependent on sexual irritation,' we must believe that emotional excitement can primarily produce the same disorders, without springing from or involving the reproductive organs." (p. 182.) The natural susceptibility of women is greatly aggravated by uterine irritation, and thus they are exposed to disturbance from every source, peripheral or centric. The form assumed by nervous disturbance may be simple tremor or pallor, or syncope, or convulsive seizures hysterical in one, and scarcely to be distinguished from epileptic, in another. In this law of the nervous system, our author finds a clew to a rational explanation of those remarkable phenomena that have characterized the so-called revivals of religion. As a matter of fact they have been marked by a certain degree of similarity at different periods and different places; that is, by features that might be referred to the agency of a common law. Precisely how it operates under varying circumstances, we do not yet understand. The pathology of revivals presents to the intelligent inquirer a field of study in which the harvest truly is plenteous, but the labourers are few.

That fright, or some other mental condition, is often a very potential element in the production of hydrophobia, is an opinion that has been entertained by many medical men. Indeed, the idea that it is always the product of emotional influences independent of any peculiar virus, has found defenders. This disease is invested with so many horrors, its attack is a matter of so much uncertainty and mystery, that it necessarily takes a powerful hold of the imagination, whereby every adverse agency in the system is stimulated into morbid activity. Whether in case of an actual bite of a rabid animal, an attack is developed by force of the mental condition, as it would not otherwise have been developed, is a question which necessarily admits of no positive answer. It would seem, however, that we might say, with some approach to certainty, that an attack may be developed without there having been any bite at all, because such cases are

on record, and as well authenticated as most strange cases are. That they present the prominent symptoms of hydrophobia with such intensity as to cause death, may be admitted, without implying that they are examples of the genuine disease. Under the influence of fright and the consequent emotions, the patient actually becomes what he fears, moved by a more or less conscious effort at imitation. Men of tolerably strong nerves who have been bitten by an animal well understood to be not mad, may experience strange sensations in the place of the bite long after it has healed, and also, it may be, a sense of constriction in the throat. The theory of the exclusively mental origin of hydrophobia seems to be conclusively disproved by the fact that a large proportion of the cases are of children too young to be influenced very strongly by the imagination.

Few are the forms of disease that have not sometimes sprung from strong emotions. The bloodvessels, the erectile tissues, the iris, the digestive organs, the bladder, the uterus—all acknowledge their powerful sway. The case of a lady is related “whose lips and mouth became suddenly swelled from having seen a child of a few years old pass the sharp blade of a knife between its lips without ever cutting itself.” (p. 252.)

No organ outside of the brain is so much under the control of this agency as the heart, and the fact has been recognized among all people from the earliest times. Considering the wide difference of opinion respecting the functions of the nerves of the heart, our author contents himself with the general conclusion that the emotions “exert this influence, certainly through the acknowledged sympathetic, and probably through the pneumogastric by the reflex action which it may be supposed to exert when excited centrally by certain emotional states.” (p. 236.) The effect of this intimate relation is witnessed not more in those extraordinary cases that have been recorded than in the increased frequency of cardiac diseases at the present day, from which, it is stated on the authority of Dr. Quain, the mortality has been more than double during the last twenty years. Some of this result may be justly attributed, perhaps, to original organic imperfection, but the most of it is chargeable to the strain and hurry, the struggle and conflict, which characterize our modern life, and imply, of course, intense activity of the passions. Not every case of sudden death following strong emotion necessarily implies heart disease, for many cases are on record, some of which are noticed by Dr. T., where neither cardiac disease nor any other morbid condition was discovered by the autopsy. How, exactly, death is produced in this class of cases is a problem that remains to be solved. We are yet to learn whether the absence of all pathological appearances is to be attributed to the imperfection of our means of observing structural changes, or to the fact that it is within the order of nature that death may sometimes result from vital agencies that leave no trace behind.

In the chapter on the influence of the emotions on the organic or vegetative functions the matter of structural changes of the foetus in utero is illustrated by numerous cases. The idea that such changes ever arise from maternal impressions, in spite of pretty strong evidence in favour of it, is not generally regarded as proved. And yet the argument chiefly relied on by the disbelievers involves a fallacy too apparent, one would suppose, to escape the slightest scrutiny. One man makes inquiry of 1200, and another of 2000 parturient women, respecting their apprehensions of malformation in the coming offspring, and fail to find them confirmed in a single instance. If such malformations and blemishes were far more frequent than they really are, such statistics would prove the lack of any con-

nection between them and maternal emotions, but inasmuch as they seldom happen, being very rare departures from the normal type, such a relation cannot be disproved by negative evidence, which, for this purpose, would be outweighed by a single positive, well-authenticated case. We might as well doubt the truth of half the facts in this volume, because many a physician of wide experience has never witnessed a single similar fact. No one would deny, we suppose, that the hair has sometimes been completely blanched by excessive fright or grief, simply because among the multitudes of cases of fright and grief that have come under his observation, not one was followed by this result. The proper question is, whether there are not enough well-authenticated cases of this relation between the parent and the foetus to preclude the idea of their being dependent on other causes. Physicians should bear in mind that the *impressions* which pregnant women speak of are generally notions engendered in their own roving imagination, very different from those intense emotions which occasionally give rise to the effects in question.

Dr. T. concludes his work with some chapters on the influence of the will, and on the influence of the mind upon the body, in the cure of disease, which we are obliged to pass by without further notice, though inferior to none of the others in interest and practical importance. The last, especially, should be most carefully pondered by every practising physician who would avail himself of all the resources of his art.

We have dwelt but little on the physiological explanations offered by the author in connection with his facts, not because we are disposed to depreciate the value of such inquiries, for when judiciously conducted they may lead to precious truths, but rather because any formal discussion of them would have turned us aside from the special purpose of this notice, which was to give the reader some idea of the character of the book. We would take the occasion, however, to express our apprehension that many of the more recent conclusions respecting the office of the various parts of the cerebral structure have been formed with a show of exactness not warranted by the state of the facts. As a matter of physiology they are harmless, perhaps, unless the torture of the poor brutes which some of them imply should force from us a harsher judgment, but when they are made the basis of a bold diagnosis of disease, they may become positively injurious. Have we not reason to think so when we hear one of the most eminent physiologists of our time, when consulted in a case of ordinary mania of a few months' standing, declare that it "arose from a blush of inflammation on the right side of the pons Varolii, which began some fifteen years before."

I. R.

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ART. XVII.—*English Midwives; their History and Prospects.* By J. H. AVELING, M.D., Physician of the Chelsea Hospital for Women, Examiner of Midwives for the Obstetrical Society of London, etc. etc. 12mo. pp. 186. London: J. & A. Churchill, 1872.

To the position of our author, as examiner of midwives, we are no doubt indebted for this curiosity of historical research, a little volume which has evidently cost him a great deal of labour, as the material for its production could only be obtained from books and documents mostly of great rarity; his design can be most easily learned from the preface, which, being short, we present in full.

*“ To arouse an interest in the midwives of this country ; to show what misery may result from their ignorance ; and to gain sympathy, advice, and assistance in endeavouring to raise them to a more refined and intellectual position, has induced the author to present this little volume to English readers.”*

As a ground for this preface we refer to page 164, where it is stated that, in villages, from 30 to 90 per cent. of the poor population are attended in their labours by midwives ; in the large manufacturing towns, among the operatives, almost to the same extent ; in East London, from 30 to 50 per cent. of the poor ; and in West London very few, but two per cent., or even less. These facts make the question of the medical qualifications of these women one of vital importance to the poor of Great Britain, whose necessities, in many instances, allow them no choice between ignorance and skill, but rather compel them, as they can do no better, to submit their cases to a minimum amount of attendance from midwives of no obstetrical training other than that usually picked up by any self-appointed monthly nurse.

In the large cities of the United States we have the same class of practitioners, but they are far less numerous, as the pecuniary means of working people enable them, as a general rule, to pay for educated attendance. Midwives in all their ignorance flourish among us, however, and carry on a large business among the ignorant poor by reason of their comparatively small numbers ; as high as 400 cases, or near it, having been attended in a year by one woman in Philadelphia. They follow, generally, an *expectant* treatment, waiting patiently for a favourable result in cases where any physician would know that unassisted delivery was impossible. We have known one to wait as long as four days in a case where the touch at once revealed an extreme deformity of the pelvis. Impaction and death of the foetus are no uncommon results of their ignorant delay in calling in the aid of a physician, and the Cæsarean operation has even been rendered imperative in a few rare instances. In the Southern States they are much more numerous in proportion to the number of inhabitants than in the Northern, and among the blacks not only extremely ignorant but abounding in superstition.

Dr. Aveling commences his historical account with a sketch of Margaret Cobbe, who officiated at the birth of King Edward V. in 1470, and received a salary of £10 per annum as royal midwife, which appears to have been the usual sum granted at that period ; the same having been given in 1503, to Alice Massy, midwife to the Queen of Henry VII. Women in this capacity also received perquisites in the form of money and presents at weddings and baptisms ; but the fees paid by private parties for services were usually ridiculously small, as attested by the following, page 21 : “ Smyth mentions a midwife who was fetched, in 1558, from Chiddar, in Somersetshire, to London to attend a lady in her confinement, and received at her departure 6s. 8d.” (Berkeley MSS.)

English midwives have been from the earliest period of their existence ignorant and superstitious to an almost incredible degree, even those whom reputation introduced into the families of the nobility, or the palace of the King himself, being scarcely a grade better. The author says : “ In cases of difficulty, relics, charms, and incantations were the methods employed to overcome them.” Girdles bearing mystic figures were kept for generations in ancient families and worn by the females when in labour to facilitate delivery, being clasped about their waists with the use of mysterious words and motions. There was little true knowledge of obstetrics on the part

of either sex prior to the commencement of the seventeenth century, as will appear by reference to the work of Rhodion, "De Partu Hominis," or its improvement by Raynald, "The Birth of Mankinde." Dr. Aveling says of this diminutive treatise that it "was translated into nearly every European language, and during the century following its publication was almost the sole book from which midwives gained any knowledge of their art." This book is chiefly valuable now as an evidence of the folly, ignorance, and ruinous practice of its day; there are several copies of it in this city. English editions appeared in 1540, 1545, 1560, 1565, 1598, and 1626.

Unfortunately for the credit of women, it must be said, that, although for many centuries they held almost entire sway in the obstetric art, no improvements were made in the system of practice, based upon a study of the mechanism of labour, until introduced by the *heartily-despised* and *bitterly opposed* *men-midwives*, with Peter Chamberlen, father and son, at the head. The elder, by his invention of the forceps and vectis, and both, by their use, together with their skill in ordinary labours, when compared with that of their female opponents, overcame by degrees the prejudices held against the employment of men, until, in time, they became the leading obstetricians of London; the latter being "physician-in-ordinary to three kings and queens of England, and to some foreign princes," and claiming to have had "the burthen of all the midwives in and about London" on his shoulders.

The constant association of these men in business with the midwives of London, and their knowledge of the ignorance of the latter and its dire consequences thus obtained, made each for himself at different periods, the former in 1616 and the latter in 1633, solicitous to procure from the Crown an enactment by which the education and government of midwives might be secured for the benefit of suffering humanity. Both of these attempts failed, and so have a number of others since, up to the present day.

Dr. Aveling revives the question at issue, and gives a history of twenty-five English midwives, to show their general ignorance, as an evidence of the necessity that exists for their compulsory education, in order to the saving of many lives now sacrificed through incompetency. From these sketches we learn that Alice Dennis received £100, in 1605, for attendance upon and delivery of the Queen of James I.: that Margaret Mercer, in 1613, went to Heidelberg with six attendants and delivered the Princess Electress Palatine, for which service, and those accompanying her, and to pay all expenses, but £84 4s. were allowed as full compensation; and that Mrs. Labany received 500 guineas, in 1687, for the delivery of the Queen of James II.

The first English midwife who appeared as an obstetrical writer was Mrs. Jane Sharp, of London, whose work was published in 1671, under the title of the "Midwives' Book," and proposes to give the experience of thirty years' practice. It is a duodecimo of 418 pages, and some of its teachings quoted by Dr. A. will give evidence of the knowledge of the author and the attainments of the midwives at that period. "The eagle-stone held near the privy parts will draw forth the child as the load-stone draw iron, but be sure, so soon as the child and after-burthen are come away, that you hold the stone no longer for fear of danger." . . . . "It will be profitable, when a woman hath had a sore travel, to wrap her back with sheep-skin, newly flead off, and let her lig in it; and to lay a hare-skin, rubbed over with hare's blood newly prepared, to her belly." Mrs. Sharp was a believer in astrology.

As an evidence of the feeling towards male obstetricians 200 years ago,

we transcribe the following from Dr. Aveling's work, page 57. . . "At this period (1659) the man-midwife was not employed in ordinary cases, his assistance being only sought when instrumental interference became necessary. A strong and rooted prejudice existed against the male practitioner in midwifery, and the midwives themselves, although they were glad enough to have his assistance when in difficulties, were on all other occasions more violent than any other class in denouncing him." . . . So careful were they, in some cases of necessity, of the feelings of the patient "*lest she should die of apprehension and shame*," that they secretly obtained the services of the male operator under cover of darkness. The feelings of the midwives is expressed in the words of Mrs. Cellier to a physician, as follows (page 83): . . . "I hope, doctor, these considerations will deter any of you from pretending to teach us midwifery, which ought to be kept a secret amongst women as much as possible."

How lamentably ignorant a large proportion of these women were, may be learned from many extracts taken by Dr. Aveling from works published during the last century, wherein it would appear that "country midwives had no further education than that which they were able to obtain by experience, or gather from the pages of an antiquated, and often delusive book." From the Sloan MS. we find the following (page 60): "When ye meanest of ye women, not knowing how otherwise to live, for the getting of a shilling or two to sustain their necessities, become ignorant midwives, their travailing women suffer tortures." Even Mrs. Nihell says of them in her book, entitled "A Treatise on the Art of Midwifery," London, 1760: "The cruelty of Herod extended to no more than the infants, not to the mothers; that of such pretenders, to both." Mrs. Sarah Stone mentioned having found a newly delivered living infant, with one eye put out, the skin of the face torn off, and the upper lip separated from the jaw, by the handling of a midwife in delivery. She was also an authoress, ("A Complete Practice of Midwifery," London, 1737) and is spoken of as far superior to Mrs. Sharp in knowledge and skill, a woman of nerve, patience, intelligence, and common sense; but was evidently very jealous of the growing reputation of the men-midwives, and violently prejudiced against the use of instruments, which she thought were employed twenty times where once, or less, would answer. She appears to have paid some attention to anatomy, and to have prepared herself for her duties with a commendable degree of care. She says: "In my humble opinion, it is necessary that midwives should employ three years at least, with some ingenious woman in practising this art. For if seven years must be served to learn a trade, I think three years as little as possible to be instructed in an art where life depends."

Dr. Aveling, in recording the fact that George IV. was born under the care of Mrs. Draper, August 12, 1762, Dr. Hunter being in waiting, says that the eccentric Philip Thicknesse was the champion of the 18th century midwives, and wrote in 1764 his "Man-midwifery Analyzed," in which "he appeals to any woman of common sense who lives in London, and who is within reach of Mrs. Draper, whether it is sensible or decent to employ a man-midwife."

Dr. Smellie appears to have employed two midwives—Mrs. Maddocks, to attend lingering cases, and Mrs. Simpson, whom he retained to teach his male pupils, and go with them to attend women in labour.

Mrs. Elizabeth Nihell was the great female champion against the men-midwives in general, and Smellie and Levret in particular; and did fierce battle in print against their employment, knowing that the introduction

of their instruments must be the key for admitting into dangerous competition the male operators. She attributed the success of the "he-practitioners" to fashion; and from her admissions it would appear that the tide so set in their favour, that a lady who had employed a midwife from taste, and had thus violated the usual order, was careful to inform her visiting friends that a doctor was in waiting in the adjoining room.

Mrs. Nihell is best known by her book, or books, for we are not now prepared to state positively whether she published one or two. Dr. A. mentions but one, viz.: her "Treatise on the Art of Midwifery," dated London, February 21st, 1760; and yet there is apparently another in French, published in Paris in 1771, purporting to be a translation from the English, the title of which would be "The Cause of Humanity, Referred to the Tribunal of good Sense and Reason, or a Treatise on Midwifery by Women." We have not seen the first-mentioned book, but as the preface of the second refers to it under its own title and date, it would appear that there must have been two, although some writers have referred to the second as a translation of the first. There is an excellent copy of this French book, formerly the property of the late Prof. Meigs, in the library of the College of Physicians of Philadelphia.

Mrs. Nihell's book (the first) is very abusive of Dr. Smellie and his "murderous instruments," as they were denominated. The doctor was unfortunately a fair subject of remark in consequence of having large, coarse hands, which the book mentions "as the delicate fist of a great-horse-godmother of a he-midwife." It has been a question for a century, who wrote this work. Dr. Samuel Merriman was of the belief that her husband, who was a surgeon apothecary, and also practised midwifery, wrote the book under her direction, saying that she could not write. Dr. Chas. D. Meigs, after twice reading her French book, formed the opinion that it was not a translation, on account of the character of the language. Who wrote either is still a mystery, and likely to remain such. The edition of 1760 is a curiosity, and a fair representative of the feeling of opposition on the part of the midwives of Great Britain towards those who, by education and skill, were surely supplanting them in their practice, notwithstanding the feeling of repugnance on the part of patients to employing any but one of their own sex.

Dr. Aveling believes that the attention drawn by this book and others of the period, and the general discussion consequent upon the opposition displayed on the part of the midwives, were in great measure instrumental in the erection of five lying-in hospitals in London in seventeen years, 1749 to 1768.

Mrs. Margaret Stephen, of London, was another midwife authoress; her little book being entitled "Domestic Midwife; or the best means of preventing Danger in Childbirth considered," by Margaret Stephen, teacher of midwifery to females, 8vo., 1795. Dr. Samuel Merriman says of her, as of Mrs. Nihell, that "she could not write a book." We believe this must be an error, as she appears to have been regularly educated in obstetrics, by a pupil of Smellie, and to have lectured on the anatomy of the pelvis, the foetal head, turning, the use of forceps and other instruments, etc., demonstrating them upon a manikin. Dr. Aveling says of this very rare book, "it is perhaps the best upon the subject that has been written by any woman in our own language." Mrs. Stephen advocated the use of the forceps as life-saving and valuable, but considered the employment of men to be indelicate and damaging to female modesty.

The name of Mrs. Elizabeth Phillips deserves special notice, as she came

to America in 1719, the year after she was licensed as a midwife by the Bishop of London, and commenced practice at the age of thirty-four. She lived forty-two years, and was buried in Charlestown, Massachusetts, in 1761, her tombstone recording that she brought into the world more than 3000 children.

The biographical sketches close with that of Martha Mears, authoress of "The Pupil of Nature," London, 1797, who appears to have come in, after the battle was over, and to have accepted the situation in good faith—acknowledging the valuable labours of Harvey, Leake, Smellie, and Denman, and recommending their books to all the midwives of the kingdom.

We now come to the main question at issue in the work under review, *i.e.*, the education and registration of the midwives of Great Britain, as a measure of public necessity, much too long neglected. The writer shows that this has been in the minds of numerous authors, etc., from the time of Andrew Boord (1547) to the present; and enumerates twenty different schemes and propositions, five of them belonging to the present century, the last emanating from the General Medical Council, and giving a hope that something may in time be accomplished. He makes a strong and eloquent appeal in behalf of suffering humanity, that something analogous to the laws and regulations of Prussia, in regard to the instruction, registration, localization, and inspection of midwives, should be enacted in Great Britain, so that the poor may secure reliable aid during their labours, in place of the ignorant attention now given them, which is too often attended with fatal consequences, to them, their offspring, or both. As a proof of this, Dr. Samuel Merriman states that in the twenty-five years, from 1657 to 1681, when the practice of obstetrics in Great Britain was almost entirely in the hands of women, the stillborn infants were to those born alive as 1 to 19; and the fatal cases of parturition as 1, to 43 recoveries. In contrast to this, during the twenty-five years, from 1791 to 1815, when the practice was more generally conducted by men, the stillborn deliveries were as 1 to 30, and the deaths of mothers but 1 in 108. This is not a comparison of sex, to the discredit of women as such, but one of ignorance, contrasted with systematic medical training, in the conduction of difficult and dangerous labours. A woman of plain education; in the prime of life; having good health; kindness of heart; refinement in manner; coolness when death threatens; and boldness to perform what may be required; may be made by education and experience a useful and successful midwife. As a class, they have but few of these requisites, except some of the physical ones, and are generally deficient in *true* nerve force, so that under trial they either fail entirely, or under excitement do bold and often very ill-judged things. There may, in time, be a few female physicians of note in our large cities, especially in the treatment of the diseases of the sexual system: but the great mass have no qualifications to offer as an inducement for preferring them to men of delicate and refined taste. We see them studying surgery, but where is the refined lady with the nerve to perform a severe, or even a slight operation. A coarse woman, or man, may have naturally this requisite, but no one wants coarseness in an operator when nerve can be found associated with refinement and a kindly nature. We once met a large Polish woman who appeared to have nerve and refinement, as we like to see them associated in a male surgeon. She was studying female surgery in Paris, and we thought if there was a woman fit to act the part of a man, with a catling or scalpel, she was that woman; and we have often felt a curiosity to know

whether she had carried out her intentions with success. We say we saw one, but cannot recall an instance of a second specimen of this rare genus. A patient of the reviewer once sewed up an incised wound in the leg of a wood-chopper, because there was no doctor within many miles. She made a great effort to do what she knew was required, but the strain against nature sent her to bed, sick, for a day afterward. And thus it must be in the practice of medicine, if refined women are to engage in it. If they do not come from this class, where is the advantage of their attendance on the refined of their own sex, other than the mere difference of the sex itself?

Dr. Aveling, whilst gladly welcoming to the profession talent of either sex, says (page 159): "Their number will probably never be very great, for, as in the field of battle there are many impediments to women becoming distinguished, so also in the fight against deadly ailments have they many disadvantages. Still, as there have been heroines in the field who have fought valiantly, so have there been, and may there be, women in the profession capable of working successfully in the cause of suffering humanity." Yes! but the Joans of Arc, and Mary Pitchers, have been few and far between, as we take it will be the female surgeons of the future, or even the instrumental obstetricians.

R. P. H.

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ART. XVIII.—*On the Scientific Value of the Legal Tests of Insanity.*  
By J. RUSSELL REYNOLDS, M.D., F.R.S. London: 1872. 8vo. pp. 52.

In this little brochure, which was read last summer before The Metropolitan Counties Branch of the British Medical Association, the writer exposes by the usual facts and arguments the insufficiency of the legal tests of insanity to make the plea of this disease available to all who are justly entitled to offer it. Though neither the facts nor his manner of presenting them are new by any means, yet the object in view would justify even a humbler attempt to enlighten his professional brethren. Lawyers, he says, make use of tests of insanity that do not represent the conclusions of science, and which thereby lead to the sacrifice of really innocent men. The proper reform he proposes to effect by means of "a conference between the medical and legal professions" for "the purpose of taking such steps as may be thought most conducive to the end in view." In this conference, he suggests that the following points should be considered:—

- "1. The arrival at a better definition of insanity generally.
- "2. A revision of the tests of insanity; (a) that based on the existence of delusion; (b) that turning upon the knowledge of right and wrong, and of the consequences of actions.
- "3. An examination, in all its bearings, of the doctrines of partial insanity and its responsibilities.
- "4. A revision of the distinction between responsibility for criminal acts and capacity for civil acts.
- "5. An inquiry into the mode of dealing with those whose mental condition is impaired, but who are not, in the popular sense of the word 'insane.'
- "6. An examination of the possibility of dealing with those bordering upon insanity, as at present recognized.
- "7. A determination of the mode to be adopted in dealing with cases, both civil and criminal, when insanity is alleged as a plea of innocence, or as a bar to disposing power.

"8. The possibility and desirability of doing away with the present mode of investigation in a court of law; viz., by calling skilled witnesses on different sides.

"9. The possibility or desirability of a court or of a commission to report on all cases of impending legislative inquiry, in regard to those who are alleged to be insane."

A more frequent extrajudicial interchange of thought between members of the two professions on this subject, would, very likely, lead them to correcter views of the nature of insanity, but we can scarcely believe that a formal conference would help to improve the practice of the law respecting it. In some of the most important questions connected with the forensic relations of insanity, physicians are far from being agreed among themselves. While some believe, for instance, that mental disease may be confined exclusively to the moral or emotional sentiments, the pure intellect remaining sound, others are no less confident that insanity necessarily implies intellectual derangement, latent, if not active and overt. Some who have had the largest opportunities of observation believe that mania may suddenly come on, and as suddenly go off; while by others, *mania transitoria* is regarded as no better than a myth. Some believe that in every case of insanity all legal responsibility for criminal acts is annulled; while others contend that in the inferior grades of severity the patient may be justly held accountable for his acts. With such diversity of opinion, how can they present any common ground on which both professions may stand? Nor does it appear that lawyers are at all nearer complete agreement in regard to the significance and sweep of certain rules of law. One judge lays down a test of irresponsibility, and accordingly the prisoner is convicted and hanged, while at the same term of the court, perhaps, another offers a different test, though sanctioned by equal authority, and the prisoner, no more insane than the other, is acquitted. The habits of mind, the intellectual training, the character of their studies, which characterize the two professions, are so widely different as to render them incapable of appreciating the full force of each other's conclusions. The physician relies upon facts and refuses to move a step without their aid. The lawyer rests upon precedent, and if he invokes the support of physical science, as he sometimes may, he is not particular as to his facts, whether new, or old and obsolete.

Even if these various disagreements were far less than they really are, we can see no more likelihood of the parties coming together in respect to the objects sought to be obtained in the author's first "point." We doubt, indeed, if he fully comprehends the situation himself. Surely, if he does, he would not seriously ask for a "definition of insanity." Although pathology is to be studied in the spirit of the natural sciences, yet, unlike them, its results do not admit of a very precise and orderly arrangement. In a few words the botanist characterizes a group of plants so definitely as to distinguish it from all other groups in the universe. Can we do that with diseases? Is there any disease in the whole nosology, to which we can assign certain characters by all of which it is manifested in every case, and which are not to be found in any other disease? If Dr. Reynolds were put on the witness-stand and asked to give a definition of consumption, would he succeed any better than the luckless expert does who is asked for a definition of insanity? We trow not. We mean, of course, by definition, a form of words applicable to every case of the disease in question, and to no other. When we consider the nature of insanity, it is strange that any pathologist should suppose that it may be defined. We know

generally that mental manifestations are dependent on the brain, and that their derangement necessarily implies derangement of the vital movements of that organ. But the brain is a large and complicated organ, every part of which has its specific purpose, and the aberrations of the mind are as various as the characters of men. The mental derangement, therefore, must vary with the portion of the brain affected, for no one supposes that in every case of insanity it is either the whole brain, or a specific part of it and always the same part, in which the morbid movement is seated. It is impossible, therefore, in the nature of things, that the different forms of mental disease, springing as they do, from different organs or different parts of the same organ, should present any notable property common to all. We might as well expect that the diseases of the heart, seated, as they are, some in the valves, some in the membranes, some in the muscular tissue, could be distinguished from all other diseases, by some symptom or sound common to them all. It is not strange that, in the investigation of a case of doubtful insanity, in which every suspicion of disease is met and silenced, if not completely suppressed by traits witnessed in understandings of admitted soundness, we should long for some convenient formula that would remove all our doubts and save us from mistakes. But nature grants few such favours to the pathologist, whatever the field of inquiry which he may cultivate. The beginnings of disease are often obscure; it may at any stage be marked by peculiar, or exceptional, conditions; it may be deprived of its wonted aspect by the influence of temperament or habits, so that with all the aids and appliances of modern investigation, he is obliged to rest on an uncertain conclusion. The student of mental pathology, in the midst of his embarrassments, has no reason to envy the lot of those who deal with the grosser elements of flesh and blood. In view of his limitations, he need not discomfort himself because of his inability to find a definition of insanity.

Neither in regard to the second "point," could we look for agreement in the proposed conference of medical and legal experts. Although delusion is one of the most common and prominent manifestations of insanity, yet who can speak with certainty of its medico-legal consequences? Were the question put to every physician in the land, to what extent does delusion affect the mental manifestations beyond the sphere of its immediate operation, what would be the replies? Some would say that with the exception here mentioned, its presence would not necessarily impair the moral or intellectual capacity. Here and there one might be found ready to declare that it might vitiate the whole action of the mind, even in cases where its influence is least perceptible. Others—and they would be the much larger part, if they spoke without reserve—would declare themselves quite unable to answer the question at all. Less diversity on a question which must be settled in the wards of a hospital could not be expected from lawyers. On one memorable occasion, the whole bench of English judges put their heads together for the purpose of making an authoritative answer to this momentous question, with no other result but that of stultifying themselves. They said that a person is irresponsible for what he does under the influence of delusion, just so far as he would be were the belief true instead of false. That is, if he believes delusively that his brother had attempted to poison him once when ill, the law would hold him harmless if he called his brother hard names and slapped him in the face, because that would be a reasonable retaliation had the charge of poisoning been true; but, if he killed him or broke his bones, he would be liable

to the usual punishment of murder and assault. In other words, being insane, he is justified in acting insanely within certain limits, but beyond them his conduct must conform to the strictest requirements of sound reason. When doctors shall have more thoroughly studied the operations of the disordered mind, and lawyers become willing to follow the teachings of science rather than old precedents and metaphysical subtleties, then they may be able to learn of one another and agree upon some better conclusions respecting the legal consequences of delusion. Until then we shall have to go on in the old way, acquitting some offenders, and hanging others who though equally innocent are judged by a different rule.

Our author's third "point" is that on which there is now the greatest diversity of opinion; because while everybody feels entitled to form an opinion on the strength of a little superficial observation, a few only have reached their conclusions by long and thoughtful study of insanity as exemplified in real life. This appears in the vague and imperfect notions attached to the term partial insanity. To the practised observer of the insane it means something very different from what it does to those who see them occasionally, and witness only such manifestations, as by force of habit, they evince in common with everybody else. In the person who discourses so coherently and even sensibly on the topics of the day, the latter see only a very local and limited lesion which has left the constitution of the mind unimpaired and capable, with this little exception, of exercising its usual powers, while the former, by his more abundant means of observation, has learned that the disorder, apparently so narrow and superficial, has touched the inmost springs of thought and feeling. At a period when insanity had been but little studied, it is not strange that its effect on the mental operations should have been greatly mistaken, but even now, in this period of large hospitals and nice pathological research, we hear those old notions echoed back from the high places of both the medical and legal profession. That they form the current belief of ordinary people, we have painful truth almost every day. A year or two ago, a most shocking act of homicide and suicide was committed in this city by a very respectable man of unblemished reputation; but, because he had seemed to most of his neighbours and acquaintances to act much like other men, the idea of his being insane, though he had murdered his wife and children and then drowned himself in the river, received but little countenance from the common speech of people or the judgments of the public press. In civil cases there is less diversity of opinion in regard to the principle that should govern the effect of partial insanity than there is to its practical application. Here the doctrine is, mind sufficient for the purpose in question, and the act itself furnishes the measure of mind required. But in regard to criminal cases, every conceivable doctrine is still professed and finds its believers among the dignitaries of the learned professions. While some would scarcely admit the plea of insanity at all, others would allow it the widest possible scope; and between these extremes, there is every variety of doctrine besides. How any compromise can be effected between such conflicting views, we cannot understand. We, therefore, could expect no benefit from such an "examination" as Dr. Reynolds proposes, without a larger clinical experience of insanity than those who would make it are likely to have. It is from that source alone that we can now look for a solution of those vexed questions that bar the way to any advance in this department of medico-legal knowledge.

In regard to "the distinction between responsibility for criminal acts and

capacity for civil acts," the subject of our author's fourth "point," there certainly is need enough of its being revised. It is curious how persistently the great luminaries of the English law, generation after generation, have insisted on this distinction in its strongest features, not hastily or inadvertently, but clearly discerning if not rightly estimating its monstrous consequences. "Although a man may be incapable of conducting his own affairs," said Sir Vicary Gibbs in the trial of Bellingham, "he may still be answerable for his criminal acts," and this he declared "upon the authority of the first sages in the country and upon the authority of the established law in all times." To a man partially insane, the law says, you shall not make a will, nor alienate a piece of land, nor marry a wife, but if you commit a criminal offence you will be answerable for its consequences like other men. The reason for the distinction is, no doubt, that in civil cases, the mental capacity may be measured and gauged, so that a person competent for one thing may be pronounced incompetent for another; while in criminal cases, the only question is, guilty or not guilty. Dr. Reynolds gives us no clew to his own wishes on this subject, and we are left in doubt whether he would have the law establish a graduated scale of mental capacity with a corresponding scale of penal accountability, or pronounce insanity, in any and every form and degree, a sufficient excuse for crime. This, however, is the only alternative implied in such a revision of the present rules of law as he suggests. Now, even if the law should adopt, in general terms, the principle of a graduated criminal capacity, who will contend that it could be satisfactorily applied in practice? Certainly those most familiar with the workings of the disordered mind would hesitate to point out exactly on every occasion where the clear light of reason became obscured by the shadow of disease. The world is more likely to come to the conclusion that insanity in any degree or shape should annul all legal responsibility, but that is a consummation we need not look for very speedily. For the present we must be content to go on in the fashion of the day, hanging some and acquitting others, sometimes according to the rule which the court may select from the heterogeneous collection that has been forming since the time of Lord Hale, and sometimes without rule and against rule.

Our author's fifth and sixth "points" may, for all practical purposes, be considered together, though possibly they may refer to different forms of disease. In the fifth, he refers, no doubt, to that kind of mental deficiency technically called imbecility, the subjects of which—such of them, certainly as have property—are often brought under purview of the law. The Dr. is evidently seeking for a remedy against the unseemly disagreements of opinion exhibited by medical experts in this class of cases. While we admit that such disagreement implies neither ignorance nor dishonesty necessarily, we do not hesitate to say there has been too much of it to be explained on any theory of an intelligent difference of opinion. After making every allowance for diversity of gifts and means of information, there remains a large amount that by no stretch of charity can be attributed to any other cause than a careless, unfounded self-confidence. And here is the source of the trouble experienced in these cases. If, on the strength of some general reputation, men will rush to the witness-stand and talk of what they know little about, the grievance will not be abated by any mode of dealing with the subjects of this or any other form of mental impairment. The only way in which the evil can be reached is that of

raising the standard of professional attainment and quickening the sense of professional responsibility.

In the sixth "point," the Dr. has reference, probably, to such cases as that of Townley, which raised such a whirl of excitement in England a few years ago. They exhibit that abnormal condition which has lately been styled the "insane temperament;" in other words, a strong proclivity to mental disease which, while it does not impair the mental operations, under the ordinary circumstances of life, is ever ready under extraordinary trial and provocation, to be developed into uncontrollable impulses. If we admit that insanity is often hereditary, we must necessarily admit that some noxious element is transmitted from parent to child, which may not for years be developed into the full proportions of overt disease. All analogy shows that such an element of evil may not lie always and entirely innocuous up to the very moment of its full development. In many cases it will, in one way or another, give some token of its existence, if we will but open our eyes to see it. We need not occupy room in describing the manifestations of the insane temperament, but will call attention to that particular one which becomes the subject of legal investigation. It deprives the patient of his self-control under circumstances peculiarly trying, and if they involve the passions, he becomes for the moment the mere creature of animal impulse. The abnormal element is roused into temporary activity, and the person is as far from the dominion of reason as the subject of unquestionable mania. This verity of science, our author intimates, has not its proper weight in determining the measure of legal responsibility. This might be expected when we consider how imperfectly this mental condition is understood. And if we further consider that the world is not yet ready to admit unequivocal insanity in excuse for crime, if it is partial, we cannot expect much favour to be shown to those unhappy mortals who are supposed to be "bordering upon insanity."

From our author's remaining "points" we gather that he is greatly exercised by our present methods of dealing with the plea of insanity in criminal cases, and is casting about for more satisfactory arrangements. A criminal trial in which insanity is pleaded in defence is not calculated, certainly, to impress one very favourably with the enlightenment of our times. It would be hard to find another transaction so thoroughly pervaded, seemingly, by the endeavour how not to do the thing required. The intention to use this plea may be known to only one of the parties, the other, of course, being taken by surprise; the experts are bothered by hypothetical cases whose purpose is to mislead; persons best acquainted with the prisoner's antecedents are not allowed to testify at all; men who never observed a case of insanity in their lives are permitted to give an opinion respecting his mental condition; and it is a matter of chance whether the court instructs the jury to be governed by tests of insanity some two hundred years old, or enlightens them with the results of modern inquiry. And those who feel these anomalies most forcibly are the least hopeful of any change for the better. They are so closely connected with the fundamental theory of our criminal law that they cannot be abandoned, apparently, without compromising those principles of personal liberty which distinguish all Anglo-Saxon communities. Let it be remembered by those who call for reform, that our ideas of law and modes of procedure are very different from those of the continental nations of Europe, and consequently that practices so easy with them and so worthy of imitation are utterly impossible with us.

Among the objectionable features presented by these insanity trials, no one is more widely recognized than the disagreements of the experts; and the feeling is, no doubt, that if this grievance were removed there would be little ground for complaint. That people of little culture should think, in spite of the old adage, that doctors should never disagree, is not very strange, but how are we to explain the fact that persons who have some idea of the nature and processes of scientific inquiry, and are accustomed themselves to think, should expect from scientific men unanimity of opinion on any subject, and suppose that, while habitually differing from one another in their books, and journals, and debates, they should always present an unbroken front the moment they appear on the witness-stand? When we consider that, in cases of doubtful sanity, the witnesses may have had unequal, and all of them, perhaps, very inadequate means of ascertaining the mental condition, and that often the range of the morbid influence can be discovered, with any approach to correctness, only after long and diligent observation, entire agreement would look very little like the result of large knowledge and careful deliberation. No contrivance ever yet suggested for obtaining the opinions of scientific men in courts of justice would prevent all discrepancy and conflict. We do not say that, by some change in our modes of procedure, such opinions would not be freed from some of the objections lying against them now, and be made more reliable as ground for a judicial conclusion. Whether any such change is practicable, we are not quite sure, but, practicable or not, it is very certain that the attempt to introduce it would be met with the strongest resistance.

We take the opportunity to say that few of the verdicts which have lately rendered the defence of insanity so scandalous can be fairly laid at the doors of medical experts. It is obvious enough to the practised observer that in these cases the verdict was but a foregone conclusion. Some pretext only was needed, and whether insanity, or justifiable homicide, or some other dodge was chosen, depended upon anything rather than the merits of the case. Who believes that, in the Macfarland case, for instance, any amount of medical testimony in favour of his sanity would have produced his conviction? As the result of considerable observation of this class of cases, we do not hesitate to say that, as a general rule, the medical testimony has the least possible agency in shaping the verdict of the jury. And we have reason to believe that, with juries of exceptional intelligence and fairness, the plea of insanity is harmed rather than helped by the testimony of doctors, and we have sometimes advised counsel, even when they had a good case, to rely solely on unprofessional witnesses, whose convictions of the prisoner's insanity are usually in direct proportion to their ignorance of the general subject.

We fear Dr. Reynolds will take little heart of grace from our remarks; but let him derive what comfort he can from the fact that the evil he would reform is not quite so bad in England as it might be. If there they occasionally hang a man who is clearly insane, they seldom allow the gallows to be cheated of its dues on the plea of insanity. But, however it may be there, we are sure that here the only efficient remedy would be to reform, not the doctors, but the jury system. As long as we put into the jury-box men whose time is worth but two dollars a day, or less, and who have only the feeblest sense of moral obligation, so long we shall have such acquittals as those of Macfarland, and Cole, and Oskins.

I. R.

## ANALYTICAL AND BIBLIOGRAPHICAL NOTICES.

ART. XIX.—*Medico-Chirurgical Transactions.* Published by the Royal Medical and Chirurgical Society of London. Vol. LV. 8vo. pp. lxiii., 338. London: Longmans, Green, Reader & Dyer, 1872.

WE are always glad to chronicle the appearance of a fresh volume of this valuable series, for it is sure to contain many papers of interest on medical and surgical subjects. The fifty-fifth volume is, we think, no exception to the rule, and we wish that we were oftener called upon to notice articles which are so evidently the result of thoughtful preparation, and which are so well written as those we now propose to analyze.

We shall call attention first to the medical papers in the volume.

*A Case of Large Biliary Concretion in the Ileum;* by F. LE GROS CLARK, F.R.C.S., F.R.S.—The symptoms presented by this case were those usual in intestinal obstruction of moderate severity, except that a hard tumour could be felt in the ileo-cœcal region. After death, which was caused by the escape of several small biliary calculi into the sac of the peritoneum, two large gall-stones were found occupying the ileum close to the ileo-cœcal valve. The gall-bladder did not appear to be altered in character, nor was there any adhesion between it and the duodenum, or anything indicating that the concretions had ulcerated through into the duodenum from the gall-bladder. Each of the large concretions measured about an inch in length and four inches in circumference, and they weighed together nearly an ounce and a quarter. They were found to consist of cholesterine with bile-pigment. Mr. Clark concludes the report of the case by saying, "I think this case worth recording, on account of the rare size of the concretions, and the singular absence of any proof that they had passed from the gall-bladder to the duodenum by an ulcerated opening through their contiguous surfaces. Yet this is the only conceivable way in which large bodies would have found their way into the bowel, especially without any attendant symptoms; and the absence of any preceding or accompanying jaundice proves that there could not have been any protracted obstruction to the passage of the bile from the gall-bladder or liver to the duodenum."

The reader will find a very similar case, except that the gall-stone was passed during life, reported by Dr. S. W. Mitchell, in the Proceedings of the Pathological Society, May 23, 1866 (see number of this Journal for October, 1866).

*The Pathology of Scarlatina and the Relation between Enteric and Scarlet Fever.* By JOHN S. HARLEY, M.D. Lond.—A full notice of this interesting paper may be found in the April No. of this Journal for 1872.

*On the Cerebral Mechanism of Speech and Thought;* by WILLIAM HENRY BROADBENT, M.D., F.R.C.P.—This paper, although interesting, does not admit of analysis, and we shall, therefore, present simply the author's conclusions.

1. Words, as remembered sounds, will be represented by cell-groups at the summit of the receptive side of the nervous system, which, for reasons given, is supposed to be situated in the marginal convolutions of the hemisphere.

2. From these cell-groups, when definitely formed, impressions will be trans-

mitted to a cell-area in the superadded convolutions, to which also impressions conveying to the mind the various properties of objects indicated by the words will be transmitted; all these impressions are associated, and the word is employed as the symbol for the resulting idea of the object.

3. Almost simultaneously motor cells in the corpus striatum are grouped for the production of articulate words under the guidance of the remembered sound in response to efforts at imitation, which are at first more or less parrot-like. The cell-groups for spoken words once formed are, however, employed almost exclusively in intellectual expression.

4. The receptive cell-groups for remembered sounds will be found in the marginal convolutions of the two hemispheres, which are symmetrically associated by the corpus callosum, and the cell-groups for spoken sounds will be found in the two corpora striata, but the absence of commissural connections between the superadded convolutions of the two hemispheres permits of the predominant, if not exclusive, education of the left hemisphere for the verbal expression of the product of intellectual action, as has been revealed by pathology. This is an efferent process, and does not imply the exclusive use of the hemisphere in thought.

5. The outlet for intellectual expression in spoken words which are motor acts, is necessarily in some part of the marginal convolutions in relation by fibres with the corpus striatum, and pathology has shown this point to be the left third frontal gyrus.

6. The left third frontal gyrus being the outlet for expression, the left corpus striatum necessarily takes the lead in the production of spoken words, but a way round exists probably from the left to the right third frontal gyrus by the corpus callosum, and thence to the right corpus striatum. Thus speech, though temporarily embarrassed by damage to the left corpus striatum, is recovered; whereas, if the cortex of the left third frontal convolution is damaged, or its fibres, both to corpus striatum and corpus callosum, cut through, speech, having no other outlet, is lost.

*On the Effects of Warm Climates in the Treatment of Pulmonary Consumption, as exemplified by an Analysis of two hundred and fifty-one Cases;* by CHAS. THEODORE WILLIAMS, M.D. Oxon., F.R.C.P., etc.—Dr. Williams speaks truly when he says that “the selection of a suitable winter climate is a most difficult question in the treatment of consumption, and one which affects, more than any other, the plans of the patient and of his friends, often entailing an exile from home and its comforts, a separation from those most dear, and the sacrifice of ordinary occupations or pursuits.” It is scarcely less true that many physicians who do not hesitate to send their patients away from home, are ignorant of the rules which should guide them in the choice of a health resort.

The author demonstrates conclusively that the important ground for selecting a winter station lies in the ascertained results of certain climates on similar cases. The warm climates which are in most repute may, he thinks, be classified as follows: 1. Inland, Temperate, and Moist Climates. 2. Dry Climates of the Mediterranean Basin. 3. Very Dry Climates of Africa. 4. Moist and Warm Atlantic Climates. The first group contains Pau and Bagnères de Bigorres. The second comprises the Rivièra, Malaga, Algiers, and the Mediterranean islands. The third contains Egypt, Syria, the Cape of Good Hope, and Natal. In the fourth group are included Madeira, the Canaries, and the West Indies. The effect which was produced on the patients by their stay abroad may be stated briefly as follow: The general health of the patients was improved in 65 per cent. of the cases, in 6 per cent. it remained stationary, and in 29 per cent. it became decidedly worse, thirteen patients dying abroad. The local results were not quite so favourable. Thus, after the return of the patients, the state of the lungs was improved in 43½ per cent., there was no increase of the disease in 14 per cent., and an increase had taken place in 42

per cent., the improved being only  $1\frac{1}{2}$  per cent. more than the worse. The most favourable results were obtained from sea-voyages, which in eighteen cases yield 89 per cent. improved and only  $5\frac{1}{2}$  per cent. stationary, and the same percentage worse. Much less favourable results were obtained in moist climates, whether temperate like Pau and Rome, or warm like Madeira and the West Indies, than in the dry bracing climates of the Mediterranean and Africa, Egypt being *facile princeps* among the winter stations of the list. Among the more important of the author's conclusions are the following: 1. That a warm and dry climate is more successful in the treatment of phthisis of inflammatory origin than a warm or cold moist one; 2. That warmth and equability of climates are more important than dryness for patients suffering from phthisis of catarrhal origin. If we compare, in cases where death has occurred, the length of life among the 251 patients who spent on an average  $2\frac{1}{2}$  winters abroad with that of 749 patients who never left England, it is found that there was an extension of  $4\frac{1}{2}$  months in favour of the climate cases. "Still more striking," he says, "was the result of observations on the effects of cod-liver oil on the duration of life. 40 patients took oil irregularly, or not at all, and of these 17 died; the average duration of life among these being only four years eight and a half months, which contrasts strongly with the average of the total climate cases, viz., eight years. Yet at the commencement these 40 patients were not more unfavourable cases than the rest." We are, of course, not to forget that the invalids enjoyed a great deal more out-door life than it would have been possible for them to do in England, but it seems to us that in every individual instance before sending a patient away from his home, we should ask ourselves the question, whether the possible extension of his life for less than half a year justifies us in separating him from his family and friends?

*An Account of Some Renal Calculi of Unusual Shape found in the Left Kidney of a Woman who died of Cancer of the Uterus, etc.;* by JEREMIAH McCARTHY, M.R.C.S. Communicated by T. B. Curling, F.R.S., President.—The pelvis of the left kidney, in the case reported by Mr. McCarthy, was distended in consequence of the pressure of a cancerous mass upon the corresponding ureter. The upper part of the ureter was occupied by a large conical mulberry calculus, and the distended pelvis contained eleven calculi of very remarkable shape. This communication is accompanied by a plate showing the form of the calculi.

*On the Pathology of the Morbid State, commonly called Chronic Bright's Disease, with Contracted Kidney (Arterio-capillary Fibrosis);* by Sir WILLIAM GULL, Bart., M.D., D.C.L., F.R.S., and HENRY G. SUTTON, M.B., F.R.C.P.—The presentation of this paper has, as our readers are probably aware, given rise to much discussion, and we shall on that account lay before them a very full abstract of it. The authors, believing "that the present prevailing pathological theories do not fully comprehend the whole history of the disease," have not limited their observation to the kidneys, but have examined microscopically all the organs of the body. As a consequence of their investigations they announce that, in the condition known as "chronic Bright's disease, with contracted kidney," the morbid process is not confined to these organs, but that all parts of the organism are more or less involved in it. The results of the microscopical examination of the kidneys is first given; some sections were made without any hardening process; others were made after freezing; some sections were faintly stained by a weak solution of nitrate of silver, others by carmine, and others were left in a natural state. The examination was made by  $\frac{1}{5}$  and  $\frac{1}{8}$  inch object-glass, and the following changes are said to have been noticed.

A fine fibroid or hyalin-fibroid substance was seen between the convoluted tubules, which made the tubules appear wider apart than normal. In some parts this substance had a homogeneous appearance, in others it had a striated or fibroid appearance like a network, and contained minute indistinct nuclei(?) ; and in others it had a coarser and more defined fibre-like character. This substance was seen in considerable quantity round the Malpighian bodies, and in still greater amount in and around the walls of the minute arteries. The muscular tissue appeared to be changed in some of the vessels ; it seemed thicker than natural, particularly when the arterioles were viewed longitudinally. The muscular nuclei were indistinct, and many of them were so altered as hardly to be recognizable. External to the muscular nuclei, there was a quantity of hyalin-fibroid substance, and the layer formed by this substance was much thicker than the muscular layer—an appearance which is very well shown in an accompanying plate. This hyalin-fibroid was in some of the arterioles bounded externally by a few coarser fibres ; in some it merged imperceptibly into the fibroid tissues lying between the tubules. The arterioles were often much thickened and tortuous. The lumen of some of them was encroached upon and narrowed, and in some it seemed completely obliterated. Many of the convoluted tubules were not appreciably altered, except that their epithelium was more or less granular. Others were much shrunken and wasted. Here and there a quantity of the fibroid material was noticed arranged in a concentric manner. These fibroid coils apparently inclosed atrophied tubules. When the cortex was very much contracted, the Malpighian bodies were found lying very much closer together than normal, and surrounded by a considerable quantity of fibroid tissue.

In regard to the examination of the organs the authors say that, when the kidney disease was far advanced, hyalin-fibroid changes were seen in the arterioles of the pia mater and of other parts of the body precisely similar to those observed in the minute renal arteries. "Our examination," the authors say, "have shown us that this hyalin-fibroid formation commences, as regards the pia mater, in the outer coats of the arterioles and in the walls of the capillaries themselves."

The microscopical appearances in chronic Bright's disease may be thus summarized : Alteration of the arterioles throughout the body, due to a hyalin-fibroid formation in the walls of the minute arteries, and a "hyalin-granular" change in the corresponding capillaries. This change occurs chiefly outside the muscular layer, but also in the tunica intima of some arterioles. The degree in which the affected vessels are altered, and the extent to which the morbid changes are diffused over the vascular system of the different organs, varies much in different cases. The muscular layer of the affected vessels is often atrophied in a variable degree.

There are at least two points on which Sir Wm. Gull and Mr. Sutton hold views directly opposed to those entertained by Dr. George Johnson. One of them is in regard to the origin of the disease. Dr. Johnson, believing that the secreting cells of the kidneys first undergo a pathological change, and that the other lesions occur subsequently, referring the change in the cells to their removing from the blood some poisonous materials with which it is charged, and so becoming themselves changed in appearance and structure. But this granular appearance of the epithelium is by no means confined to Bright's disease, for it is not unusual to find it in kidneys which present no sign of disease except merely mechanical congestion. The authors of the paper therefore believe that the cell changes are secondary to the formation of the hyalin-fibroid substance in the intertubular parts, and depend merely upon a diminished supply of blood

which induces a diminished activity in the secreting function, and a consequent atrophy of the epithelial cells. The second point of disagreement is in reference to the morbid condition antecedent to the changes in the minute arteries and capillaries. It is well known that Dr. Johnson considered that an impure state of the blood induced this vascular change. To this Sir Wm. Gull and Mr. Sutton object that extreme degeneration of the kidneys, and, together with this, no doubt, a noxious state of the blood, may be present, and yet the vessels may be found healthy. Their observations have shown them, on the other hand, that the vascular changes may exist independently of renal disease, and that the renal change in chronic Bright's disease with contracted kidney, when present, is but a part of a general morbid condition. They are also of the opinion that the hypertrophy of the left ventricle of the heart, so frequently observed in this disease, is not induced by the renal disease, but that both these morbid conditions are dependent upon the same general cause. The "hyalin-fibroid" material in the walls of the arterioles must destroy their elasticity; and the left ventricle, therefore, owing to this cause, has of necessity to contract with greater force to carry on the circulation. The authors briefly allude to various other morbid conditions, such as vesicular emphysema, retinitis albuminuria, contraction of the spleen, and fibroid changes in the stomach, which form part of the pathological changes known as chronic Bright's disease with contracted kidney, and which they explain in the same way. "Clinical medicine," they say, "especially as followed in private practice, enables us often to predict and trace these changes onwards until the morbid formation is general. Thus, a patient may come under care for headache and other allied symptoms in whom, at a given stage, the renal and cardiac function may be normal, and as the case goes on the urine first, or the heart first, or the breathing may first give signs of further lesion until, as the malady progresses, that state called chronic Bright's disease may be fully produced, as shown by the thickened heart, the pale, watery urine, the shrunken skin, the troubled brain, and the dimmed sight."

The conclusions at which Sir Wm. Gull and Mr. Sutton have arrived are as follows:—

1. There is a diseased state characterized by hyalin-fibroid formation in the arterioles and capillaries.
2. This morbid change is attended with atrophy of the adjacent tissues.
3. It is probable that this morbid change commonly begins in the kidney, but there is evidence of its also beginning primarily in other organs.
4. The contraction and atrophy of the kidney are but part and parcel of the general morbid change.
5. The kidney may be but little if at all affected, whilst the morbid change is far advanced in other organs.
6. The morbid change in the arterioles and capillaries is the primary and essential condition of the morbid state called chronic Bright's disease with contracted kidneys.
7. The clinical history varies according to the organs primarily and chiefly affected.
8. In the present state of our knowledge we cannot refer the vascular changes to an antecedent change in the blood due to defective renal excretion.
9. The kidneys may undergo extreme degenerative changes without being attended by the cardio-vascular and other lesions characteristic of the condition known as chronic Bright's disease.
10. The morbid state under discussion is allied with the conditions of old age, and its area may be said hypothetically to correspond to the "area vasculosa."
11. The changes, though allied with senile alterations, are probably due to distinct causes not yet ascertained.

"Should it be considered necessary," they add, "to distinguish this morbid state by any special term, we venture to suggest for that purpose the name 'arterio-capillary fibrosis.'"

The paper is illustrated by two plates showing the morbid microscopical appearances of the arterioles and kidneys. An appendix contains the report of sixty cases of renal disease, in many of which the relative width of the vessels, their channels and walls is given.

J. H. H.

We shall next invite the attention of our readers to those papers which are more distinctively of surgical interest, and shall first consider

*On Ether and Chloroform as Anæsthetics*; by J. WARRINGTON HAWARD, F.R.C.S., Assistant-Surgeon to the Children's Hospital.

American surgeons have looked with great interest upon what our countryman, Dr. Jeffries, has called the re-introduction of ether into England, and have watched with some little anxiety the issue of the numerous trials of our favourite anæsthetic, which have lately been made in the mother country. The great difficulty in accurately estimating the comparative advantages and disadvantages of ether and chloroform has been, it seems to us, that the advocates of either agent—like those famous knights who fought because they looked on different sides of the same shield—have little or no personal experience with any but the one anæsthetic which they habitually employ: the chloroformists, confident of the superiority of their favourite, make no use of ether, while those surgeons who prefer the latter agent, firmly convinced of its greater safety, hesitate on conscientious grounds to employ the more dangerous chloroform, and when compelled by circumstances to do so, often use it so timidly as not to gain from it even those advantages which it probably possesses. Hence the present thorough experimentation with ether, which is now being made in England by expert chloroformists, will, we are disposed to think, contribute more facts for a just comparison of the merits of the two anæsthetics, than all the experience with either separately, which has hitherto been gained.

Our own use of chloroform has been very limited, but we have always been disposed to concede the claim made for it, that its employment was less often followed by nausea and vomiting than that of ether; hence we have been very forcibly impressed by the evidence given by Mr. Haward and others accustomed to the use of chloroform, that in this respect we have been in error, and that even as regards the production of after-sickness, ether has the advantage.

"It is necessary," says Mr. Haward, "to distinguish between the immediate and the after-sickness produced by these vapours. If the stomach contains food, the inhalation of either ether or chloroform vapour will be equally liable to empty it. But chloroform sometimes produces a persistent vomiting, which comes on after its inhalation is finished, and which may cause even dangerous exhaustion. I do not think ether will cause this. In none of the cases in which I have given it has there been any after-sickness in this sense of the word. To one child I gave it, in whom chloroform had twice produced after-sickness; but the ether had no such effect."

The last paragraph of Mr. Haward's paper seems to us particularly significant, as showing that the dangers of chloroform are becoming not less familiar to those who inhale, than to those who administer that agent:—

"It has been said that one great advantage of anæsthetics, is the mental tranquillity with which a person is enabled to regard the prospect of an operation which is to be robbed of its pain; but I am not sure that this is not often counterbalanced by the dread of an anæsthetic which it is known may of itself prove fatal. It seems to me, therefore, that for this, as for the other reasons I have herein advanced, we should, if possible, avail ourselves of an anæsthetic so safe as ether appears to be, rather than of one, however much it has to recommend it, to which is attached the danger which unquestionably pertains to chloroform."

To Mr. Haward's paper are appended two tables—one embracing 13 cases of death from the inhalation of chloroform, which with 127 others referred to in the text make a grim aggregate of 140;<sup>1</sup> and the second enumerating 97 cases in which the author has administered ether, and in only one of which was there any after-sickness.

*On the Operation of Opening the Larynx by Section of the Cartilages, etc., for the Removal of Morbid Growths*; by ARTHUR E. DURHAM, F.R.C.S., Surgeon to, and Lecturer on Anatomy at, Guy's Hospital.—An abstract of this paper has already appeared in the quarterly summary of this Journal, in the number for January, 1872, page 261. In addition to the five cases recorded by Mr. Durham and his colleagues, and here published in full, thirty-two others are collected in an appendix, and three are mentioned in a foot-note as having been brought to the author's notice since the reading of his paper, so that the grand total of operations referred to is forty. The results of these cases may be tabulated as follows:—

Completely successful	22
Partially successful	7
Temporarily benefited (cancer)	4
Negative result (no harm done)	3
Not terminated	2
Died	2
 Total	 40

Mr. Durham has, we think, fairly sustained his position, and has clearly shown that the operation which he advocates is neither so difficult nor so dangerous as it has been represented; and that it is a legitimate surgical resource in any case in which attempts to remove the morbid growth through the natural passages have failed.

*On a Case of Unilateral Atrophy of the Tongue*; by WM. FAIRLIE CLARKE, M.A. Oxon., F.R.C.S., Assistant-Surgeon to Charing Cross Hospital, etc.—A very full abstract of this communication was published in the number of this Journal for April, 1872, page 525. The appearance of the tongue of Mr. Clarke's patient is well shown in a wood-cut which accompanies his paper.

*A Case of Complete Recovery after Necrosis of the Body of a Cervical Vertebra*; by WILLIAM OGLE, M.D. Oxon., F.R.C.P.—The patient was a middle-aged man with a history of syphilitic infection, and complete recovery ensued after the exfoliation and removal of several sequestra, the largest of which appeared to consist of almost the entire body of the fourth cervical vertebra. In terminating his paper, which is one of much interest, Dr. Ogle refers to the well-known cases recorded by Mr. Wade and Mr. Keate, and to one of a like character more recently published by Dr. Mackenzie, but does not refer to similar cases narrated by Mercogliano, Syme, Bayard, of Canada, and Morehouse, of Philadelphia.

*On the Surgical Treatment of Suppurating Ovarian Cysts, and on Pelvic Adhesions in Ovariotomy*; by TIMOTHY HOLMES, F.R.C.S., Surgeon to St. George's Hospital.—This short paper gives an account of a very interesting case of ovarian tumour which occurred in a middle-aged married woman, the operation of tapping having been followed by suppuration of the cyst, and

<sup>1</sup> These figures by no means represent the total mortality due to the inhalation of chloroform; the actual number of recorded deaths from the use of this dangerous agent exceeds, we believe, three hundred.

ovariotomy having been eventually performed with a successful result. From the author's remarks upon the *diagnosis* of chronic suppuration in ovarian cysts, we extract the following sentences:—

"Looking back on the matter with the information derived from the operation, I think I might say that in another case in which this general tenderness to pressure coincided with symptoms of low peritonitis, with rapid emaciation otherwise unaccounted for, and with a very feeble and somewhat rapid pulse, I should be disposed to conjecture the occurrence of chronic suppuration within the cyst, and that this conjecture would be confirmed if the rise of temperature mentioned by Mr. Wells were observed. Under such circumstances the temperature should, no doubt, be carefully noted."

With regard to the proper *treatment* of suppurating ovarian cysts, Mr. Holmes expresses entire dissent from the adverse opinion advanced by Mr. Bryant in the *Guy's Hospital Reports* for 1868 (3d S., Vol. XIV.),<sup>1</sup> and, referring to several cases recorded by Mr. Spencer Wells, in which ovariotomy has been successfully performed under these circumstances, declares that he "cannot doubt that the best course to pursue is at least to attempt the operation." As to the management of pelvic adhesions, Mr. Holmes advises that, when (as in the case reported) they cannot be safely torn through, the cyst should be pulled as far as possible out of the abdomen, and a clamp applied, provided that the neck of the cyst is not too thick to admit of such treatment.

*An account of a Case of Resection of the Shoulder and Elbow Joints of the same Arm for Gunshot Injury*; by WILLIAM MACCORMAC, F.R.C.S., Assistant Surgeon to St. Thomas's Hospital.—This case is one of great interest. From the upper extremity of the humerus four inches of bone were removed, and from the elbow a thin slice of the humeral condyles, the head of the radius, and the upper third of the ulna, the periosteum being as far as possible preserved. A week after the operation the patient exhibited symptoms of pyæmia, but eventually recovered, and eighteen months subsequently was in good health and possessed a very useful arm. The following is Mr. MacCormac's description of the limb at this time:—

"The elbow-joint is thoroughly healed, and the ulna so far reproduced that there is scarcely any appreciable deformity or loss of shape in the joint. He can flex and extend it, and also pronate and supinate the forearm. The power of the hand is being rapidly and completely regained. As the shoulder-joint is not yet healed [there was a sinus leading to dead bone] its condition is not so satisfactory, but by means of the pectoralis and latissimus dorsi muscles he moves the joint freely backward and forward. He cannot raise the arm very high from the side, but this is no uncommon result after excision of this articulation, and in this particular instance the greater portion of the deltoid muscle was destroyed by the shell fragment causing the original wound."

An excellent plate, taken from a photograph, accompanies Mr. MacCormac's paper.

*On a Case of Abdominal Aneurism cured by Compression of the Aorta*; by WALTER MOXON, M.D., etc., and ARTHUR E. DURHAM, F.R.C.S., etc.

*A Case of Abdominal Aneurism treated by Distal Pressure, with Remarks*; by THOMAS BRYANT, F.R.C.S., Surgeon to Guy's Hospital.

Dr. Moxon's and Mr. Durham's patient was a young man, twenty-seven years of age, and the aneurism was so situated that it was possible to effect compression on the cardiac side of the sac by means of Lister's instrument. A modified Valsalva treatment was employed for eleven days as a preliminary measure,

<sup>1</sup> See No. of this Journal for July, 1869, page 193.

and then, chloroform having been administered, the aortic compressor was adjusted and kept in place for ten and a half hours.

"On removing the tourniquet, it was found that the aneurism no longer pulsated. It was manifestly smaller and harder than before the application of the pressure. The surface of the skin upon which the pad of the tourniquet had pressed was of a bright-red colour. No pulsation of either femoral artery could be detected. The lower extremities, when uncovered and exposed for examination, were found to be cold and clammy to the touch, and presented here and there irregular livid or palish-purple patches of discolouration. It is worthy of note, however, that at the end of the treatment the extremities appeared less cold, and the patches of discolouration were fewer and smaller than they had been found to be when examined during the progress of the compression at a comparatively early period. In the course of a short time pulsation of the aneurism was again distinctly recognized. But it was very much feebler and altogether different in character to the strong full pulsation which was so manifest before the commencement of the treatment. . . . The next day the aneurism was smaller, much harder, and less compressible than it had been. But it still pulsated in a marked degree. Pulsation of the femorals was scarcely if at all perceptible. . . . The portion of skin which had been immediately in contact with the pad of the tourniquet presented a bruised appearance. It was of a deep livid red colour, and was exquisitely tender to the touch. The patient suffered from no *internal* pain or tenderness whatever, nor could any indication be detected of visceral disturbance or mischief as the result of the long-continued and severe pressure. . . . At the end of a fortnight the aneurism was not only much smaller, and harder, and feebler in pulsation, but such pulsation as remained could be arrested with great ease by digital pressure upon the aorta. . . . The pulsation became less and less easily recognizable, until rather more than a month after the application of the pressure, when it ceased altogether to be perceptible."

In terminating their paper Dr. Moxon and Mr. Durham mention that they have under observation another case of abdominal aneurism, in which they expect to employ proximal compression at some future time; they also give a lithographic plate of "sphygmograms," illustrating the effect of compression of the abdominal aorta upon the pulse at the wrist, the most striking feature being a marked dicrotism, which they believe to be the result of the increased strain upon the thoracic aorta.

The result of Mr. Bryant's case was less fortunate; the patient was a man thirty years of age, and the aneurism was situated so close to the diaphragm as to prevent the application of pressure on the proximal side of the sac. Distal compression was therefore determined upon, and, chloroform having been administered, Lister's instrument was adjusted below the tumour and kept in position for twelve hours, the aneurism continuing to pulsate during the whole time. The patient vomited two or three times during the following night, but seemed to be doing well in other respects, and the pressure was therefore re-applied twelve hours subsequently, and maintained for four hours, when it was finally removed. At this time the patient was breathing badly, and his pulse was very weak; he gradually sank, and died eleven hours after the removal of the clamp, and thirty-nine hours from the period of its first application. A *post-mortem* examination showed that the formation of a laminated coagulum in the aneurismal sac had already begun, and revealed the cause of death in the existence of peritonitis and severe bruising of the viscera, with effusion of blood and obstruction of the bowel at the seat of pressure.

In his remarks upon this case, Mr. Bryant refers to the general question of the distal treatment of aneurism by temporary compression, and speaks in deservedly favorable terms of the ingenious "artery-constrictor" devised by our fellow-countryman, Dr. S. Fleet Speir, of New York.

"Up to the present time the distal treatment of aneurism has been, with rare exceptions, judged mainly upon the results of the application of the permanent ligature. . . . I have a strong feeling that the distal treatment of aneurism by means of pressure in one of its forms, is likely to be followed by as much success as has already attended the treatment by pressure when applied to the proximal side of an aneurismal tumour."

Mr. Bryant's paper is illustrated with a well-executed chromo-lithographic plate, showing the appearance of the aneurismal sac when laid open.

*Account of a Case of Intestinal Obstruction in which an Artificial Anus was made in the small intestine. Recovery, and subsequent death from Cancer and Fatty Degeneration of the Heart*; by JEREMIAH McCARTHY, M.R.C.S., Assistant-Surgeon to the London Hospital; communicated by T. B. CURLING, F.R.S., President.—Mr. McCarthy's patient was a man fifty-two years of age, who had been suffering from gradually increasing obstruction of the lower bowel (due to cancerous disease) for about three months before his admission to hospital. As the site of obstruction was such as to forbid left lumbar colotomy, Mr. McCarthy determined to open the small intestine (*enterotomy*) in the right iliac region, and by so doing succeeded in affording complete relief to his patient, who, however, succumbed by the natural course of his disease some seven weeks afterwards. The case is one of much interest, and one which reflects great credit upon the operator. We cannot but think, however—and our opinion is sustained by the account of the *post-mortem* appearances—that it would, upon the whole, be safer, in a similar case, to at least make an effort to reach the cæcum in the right lumbar region, before incurring the risk of peritonitis by opening the bowel from the front; for though the case here recorded is sufficient to show that Mr. Erichsen is in error in declaring that peritoneal inflammation is "inevitable" after such an operation, there can be no doubt that it is a complication much to be dreaded, and, moreover, one which is very likely to occur.

The present volume of the *Medico-Chirurgical Transactions* will, we think, fully maintain the high reputation of its predecessors.

J. A., JR.

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ART. XX.—*Transactions of the Clinical Society of London.* Vol. V. 8vo.  
pp. xlvii., 253. London: Longmans, Green & Co., 1872.

THE present volume of this valuable series comprises the proceedings of the Clinical Society during its fifth session. We find in the list of contributors the names of many who furnished reports to the preceding volumes, a fact which shows that those who founded the Society still take a lively interest in its welfare. The opening *address* is by the President, Sir WILLIAM GULL, who is evidently a firm believer in the progress of medical science, and it is pleasant to find one who has attained so eminent a position in his profession, willing to admit, and even hoping, that the physicians of the next generation may be as superior in attainments to those of this, as these are to their immediate predecessors. The importance of the study of anatomy, both healthy and morbid, of diagnosis, and of therapeutics, is very forcibly pointed out. The author is disposed to believe that many morbid processes which are now unintelligible would cease to be so if comparative anatomy were better understood, and in this connection refers to the fact that malformed parts are, more than all others, liable to disease.

In his remarks upon diagnosis is the following suggestion, which we think has sufficient value to be transferred to these pages.

"Upon the exactest mechanical diagnosis," he says, "must follow the intellectual determination of the vital conditions, and of the possible and impossible. . . . Perhaps it would be well if members of this Society would bring before it some illustrations of the impossible as well as of the possible. It would tend to prevent us from making foolish, because ignorant, attempts to do that which cannot be accomplished; attempts which only result in loss and hurt to the individual. As a practical profession, this is not an unimportant consideration. . . . The negative results of such a mental exercise are by no means indifferent if one may judge by the results which are often seen in the treatment of chronic incurable disease, where the small remnant of life is wasted in futile and painful efforts at cure. And in the same category are the attempts at the impossible upon those unfortunate members of the human family who are born with a feeble vital capacity. Delicate women, for instance, who, if I may say so, have no more stature of strength than falls to the lot of a canary, and yet upon whom we try, how vainly, all the chemistry of tonics."

We shall first invite attention to the medical papers of the volume.

*Two Cases of Lpus Erythematosus, treated with Woodhall Water*, reported by T. W. NUNN, derive their interest chiefly from the fact that in one case a complete cure, and in the other, which is incomplete, great improvement, followed the use of this water, after all ordinary remedies, such as mercury, arsenic, iodine, etc., had been exhibited under skilled direction.

Mr. Nunn also takes occasion to speak favourably of a combination of lemon-juice with milk. The juice of half a lemon should be added to a tumblerful of new milk and taken every morning. It neutralizes, he says, the alkalinity of the milk, and often enables the patient to take milk, when it would otherwise prove indigestible. He recommends the mixture as an agreeable adjunct to, or substitute for, cod-liver oil.

Three very interesting cases of *Partial Pericarditis* are reported by Dr. CHRISTIAN BÄUMLER, in one of which the author was himself the subject of the attack. He is inclined to believe that they are of more frequent occurrence than is generally admitted, and that they are the most frequent cause of the milky spots of the pericardium so frequently found at post-mortem examinations. The chief symptoms of these and similar cases are, pain in the praecordial region, difficulty of breathing in consequence of the pain, and irradiated pain in the throat, neck, left shoulder and left arm. The heart's action is accelerated, and becomes much more easily affected than in health by even slight muscular action; the temperature of the body is only slightly raised; there is well-marked friction sound, giving evidence of a roughness of the membrane, and probably of some fibrinous exudation, but there are no signs of fluid effusion, of which probably a very small amount, if any, only is present. The intensity of the subjective symptoms, especially at the outset, is not proportionate to the extent of the disease. With regard to the treatment of such cases the author says, that rest alone is often quite sufficient for the cure of the disease. If there is any considerable increase in the frequency of the heart's action he recommends the continuous application of an ice-bag and the use of digitalis internally. The ice acts not only by diminishing the frequency of the heart's action, but also by relieving the pain.

Three cases of *acute idiopathic general pericarditis* are also reported, which were remarkable for the insidious manner in which the disease occurred, and for the entire absence of all rheumatic symptoms in the joints. The cases were all children between eight and ten years of age.

*Three Cases of Rapid Contraction of Cavities in Phthisis (Caseous Pneumonia)* are related by Dr. C. THEODORE WILLIAMS, and an abstract of which will be found in this Journal for January, 1872, page 243.

Dr. JOHN MURRAY reports a case of *Paracentesis Thoracis in a case of Uncomplicated Pleuritic Effusion*, which shows the great advantage of the early performance of thoracentesis in uncomplicated pleuritic effusion. At the time tapping was performed the patient had been ill only a month, and medicines had been found incapable of relieving the condition. Very marked improvement both in the general and local symptoms followed the removal of the liquid. The fluid was drawn off by means of Nyrap's modification of Bowditch's aspirator.

*The Sequel of a Case of Syphilitic Neuralgia*, by FRANCIS E. ANSTIE, M.D., and a *Case of Paralysis of some Cranial Nerves, referable to Tumours of the Cavernous Sinus, cured by Iodide of Potassium*, by W. MOXON, M.D., are given, of which abstracts will be found in the April number of this Journal for 1872.

*A Case of Uncomplicated Aphasia* is reported by JAMES GLOVER, M.D., in which the patient had two attacks of aphasia without hemiplegia. The first attack occurred without warning, but the second was ushered in by a loss of consciousness and a convulsion. On investigating the defect of speech, it was found to consist not in the difficulty of speaking a word, but in the difficulty of remembering it, for on reminding the patient of the word wanted he spoke it fluently. He could write it well, and sometimes could write a word when he could not speak it. There was therefore a loss of the memory of words, a condition which has received the name of amnesic aphasia. Dr. Glover was inclined to believe that there was "a slight extravasation somewhere" in the brain, and more probably on the right than on the left side, inasmuch as there was slight paralysis of the left arm.

*A Case of Imperfection of the Aortic Valves; Hypertrophy and Dilatation of the Ventricles; Stretching of the Mitral Valve; Transient Triple Sound at the Apex of the Heart; and Dropsy*, is reported by S. O. HABERSHON, M.D. In the remarks which follow the report Dr. H. draws attention to a triple sound which was produced at the mitral when the valve began to yield, and which ceased after six or eight weeks' duration. The character of the sound was that often described as a reduplication of the second sound, the bruit de rappel of Bouillaud; but Dr. Habershon thinks it very probable that this second sound was really a reduplication of the first sound, and that it may have been produced by the increased tension in the left auricle, and in the lungs interfering with the free action of the right side of the heart; the right heart becoming delayed, and there being a want of symmetrical action of the two ventricles. As the right side became accustomed to the increased obstruction, and its muscles had become hypertrophied, then, the mitral and tricuspid being synchronous in their action, there was only a single sound.

*A Case of Cardiac Disease after Rheumatism. Regurgitation through the Mitral Valve; Partial Obstruction; Presystolic Bruit; Embolism; Left Hemiplegia; Recovery—first of the hand, then of the arm, and afterwards of the leg*, is reported by S. O. HABERSHON, M.D. There was good reason for believing that the cerebral symptoms in this case arose from embolism, and not simply from functional disturbance, but it was remarkable how different the order of recovery of the paralyzed parts was from that observed in ordinary hemiplegia from apoplectic effusion and from other causes; the arm regained its power before the leg, and in the limbs themselves the order was also re-

versed, the fingers, then the arm and shoulder; whereas in hemiplegia generally, the muscles of the shoulder recover first, then those of the arm, and lastly those of the hand.

*A Case of Tumour in left half of floor of fourth Ventricle, with small Tumour in Cerebellum*, is related by W. H. BROADBENT, M.D., the prominent symptoms of which were vomiting, constipation, spasmodic contractions of right arm and leg, and paralysis of the left side of the face and of the external rectus muscle on the same side. The patient was a child two years of age. After death a small tumour was found embedded in the left hemisphere near its edge. It was yellow in colour, of firm consistence, and gliomatous in structure; it appeared to be connected with the pia mater, and was probably the cause of the persistent vomiting. Another tumour projected from the left lateral half of the floor of the fourth ventricle, similar in appearance to the one found in the cerebellum. It involved the common nucleus of the portio dura and sixth nerves of the left side, and undoubtedly produced by pressure the paralysis of the facial muscles and of the abducens of the eye on the same side, while by its interference with the decussated track of motor impulses from the left corpus striatum to the arm and leg of the opposite side, it gave rise to the contraction, agitation, and loss of use seen in them, especially in the right hand.

*A paper on the Temperature in Certain Affections of the Nervous System, but especially in Tetanus, with Observations and Notes on the Influence of Remedies upon the Temperature of the Body*, by JOHN W. OGLE, M.D., may be regarded as a continuation of a communication in the preceding volume of these Transactions. In the case there reported it was ascertained that whilst the temperature throughout the entire course of the illness was much higher than natural, it was over a period of several days much higher in the evening than in the morning. In the present article he refers to a case of tetanus reported by Dr. W. W. Keen in the Philadelphia *Medical Times* for March 1, 1872, and quoted in this Journal for January, 1872, in which an evening exacerbation of temperature was also observed. Four other cases are also referred to in which the same fact occurred. An evening rise of temperature is, the author quotes cases to prove, also found in the general paralysis of the insane and in chorea.

Dr. Ogle thinks that a full and precise inquiry into the effects of various remedial agents, as well in health as in disease, upon the temperature of the body, and also upon their *modus operandi*, would prove of the greatest interest and utility. In an appendix to the paper he gives the results of numerous experiments of this nature.

*A Case of Hyperpyrexia (heat-stroke) in Rheumatic Fever, successfully treated by Cool Baths and Affusions*, is related by HERMANN WEBER, M.D., the main points of which are as follows: A youth, æt. 16, had rheumatic fever after sore-throat, in August, 1871; about the twelfth day of the rheumatic fever sudden rise of temperature to  $108.2^{\circ}$  F., with delirium and other brain symptoms; reduction of heat and removal of brain symptoms by cold baths and cold affusions; eleven hours later renewed threatening of hyperpyrexia, again removed by the same means, after which convalescence gradually became established. At the time the patient was first put into the bath his temperature was  $108.2^{\circ}$  F.; that of the water of the bath was  $71^{\circ}$  F. After remaining in the bath half an hour, the temperature of the patient was  $101.8^{\circ}$  F., while that of the water had risen to  $82^{\circ}$  F.

Dr. Weber is inclined to believe that the hyperpyrexia is dependent upon embolism or autochthonic plugging of the arteries in the hypothetical regula-

tory centre of chemical changes and heat. To this view it might be objected that, if the hyperpyrexia were dependent upon these causes, it could not so readily be overcome by treatment, but he does not find this objection convincing. "A very minute embolus," he says, "may cause a shock to a vital organ, and the organ, if death be prevented during a comparatively short space of time, and provided the injury be not too great, may resume its functions, or a rapid change in the internal circulation, as effected by the application of cold to the surface, may remove little impediments in the capillaries."

*A Case of Unilateral Face Atrophy, dating from an attack of Chorea,* is recorded by THOMAS BUZZARD, M.D., in which the patient presented a remarkable appearance, owing to a greatly atrophied condition of the right half of her face. Full details of the difference in size between the two sides of the face by actual measurement are given. There was no alteration of cutaneous sensibility. The patient was subject to "fits." The atrophy of the face was believed to have commenced shortly after an attack of chorea, and Dr. Buzzard, alluding to this fact, says that if we accept Dr. Hughlings Jackson's view, that embolic plugging of the minute vessels supplying the corpus striatum is the immediate cause of chorea, we may readily suppose that the same cause interfered with the functions of trophic nerves distributed to the right side of the face of the patient. This case, Dr. Buzzard says, resembles a disease described by Eulenberg, under the name of "facial hemiatrophy," or "unilateral face atrophy." Altogether, thirteen cases have been recorded, of which four were observed in men, and nine in women. In all the disease occurred before the age of twenty-five, in ten out of thirteen before the patient was fifteen.

*A Case of Lichen Ruber of Hebra* is related by TILBURY FOX, M.D. Pathologically speaking, this disease consists in hyperæmia of the deep part of the hair follicles, and hypertrophy of the cellular portion of the connective tissue forming the root sheet and the follicular wall, especially at its lower part; this hypertrophy being apparently the direct result of the hyperæmia.

The treatment adopted by Dr. Fox was as follows: Alkalies and tonics for the dyspeptic symptoms which happened to be present, and oxide of zinc lotions, alkaline and bran baths for the hyperæmia. Later, cod-liver oil and iron were given. Arsenic is of no service in this disease.

The patient made a good recovery.

*Case of Intestinal Obstruction at the seat of a Congenital Constriction of the Gut, and at the point of departure of a Diverticulum, probably the remains of the Omphalo-Mesenteric Duct,* by REGINALD SOUTHEY, M.D.

*Case of Intestinal Obstruction, the result of Congenital Narrowing of the Gut at the seat of departure of a Diverticular Appendage, a persistent Omphalo-Mesenteric Duct, Peritonitis, Death,* by REGINALD SOUTHEY, M.D.

In the first case, a diverticulum of intestine, above four inches in length, was found attached to the anterior abdominal wall about two inches below the umbilicus. This diverticulum, which had the calibre of a goose-quill, was given off from the intestine about two feet above the ileo-cæcal valve, and was, it was thought, the remains of the omphalo-mesenteric or vitelline duct. The ileum just above the diverticulum was so constricted as only to admit the top of the little finger, and at the point of constriction the coats of intestine, both muscular and mucous, were ulcerated through, the continuity of the intestine being only maintained by the thickened peritoneum.

In the second case the bowel, at a point about eighteen inches above the ileo-cæcal valve, was abruptly constricted to a diameter of about half an inch, and a diverticulum five inches long, having a calibre just large enough to admit

the little finger, passed from the intestine and was attached at its extremity to the umbilicus. In this case death was hastened by acute general peritonitis.

*Paralysis of Left Face, lateral deviation of Eyes to right; Impairment of Articulation and Deglutition; Loss of Sensation in Right Face; Sudden Death; Tumours, probably Syphilitic, in Pons and Medulla Oblongata.* By W. H. BROADBENT, M.D.—The above title presents a fair summary of the leading features of this case. At the post-mortem examination, two small tumours were found near the floor of the fourth ventricle—one, about the size of a pea, in the pons; the other, a little larger, in the substance of the medulla. There can be very little doubt, Dr. Broadbent thinks, that the lower of these tumours was the cause of the dysphagia and of the sudden death, as it was in close proximity with, and probably involved in a greater or less degree, the reflex centres for deglutition, respiration, and the cardiac movements, the nuclei of the glosso-pharyngeal and vagal nerves. In regard to the upper tumour, he says that he is inclined to consider this as the cause of the anaesthesia of the right side of the face, by encroaching on the nucleus or fibres of origin of the right trigeminus, and of the left facial and ocular paralysis, by cutting across the fibres between the common nucleus of these nerves and the right corpus striatum just as these fibres crossed the median line. He is the more disposed to take this view in consequence of the persistence of the lateral deviation of the eyes, this being usually a fugitive condition when it is due to a lesion of the corpus striatum.

*A Case of Diphtheria, followed by Paralysis,* is recorded by EDWARD HEAD-LAM GREENHOW, M.D., in which there was a very marked and extraordinary tenderness produced by pressure over the nerves of the paralyzed limbs, and diminished frequency of the pulse, which occurred just when the throat symptoms began to subside. Dr. Greenhow has in another place expressed the opinion that the pain produced in similar cases by pressure over the nerves is due to neuritis—an opinion which the facts of the present case seem to corroborate. The slowness of the pulse indicates great debility. The patient, whenever it exists, should be placed at once in the recumbent position, and at the same time allowed a liberal supply of liquid food and stimulants at frequent and regular intervals.

*Cases of Lepra Anæsthetica,* by F. E. ANSTIE, M.D.

*A Case of Tubercular Leprosy, with remarks on the treatment of Leprosy,* by TILBURY FOX, M.D.

Dr. Anstie's patient was unmarried, 29 years of age, and had lived in India, with but one interval, for eleven years. During this time he had suffered from intermittent fever, and great privation in regard to food and lodging. About two years before coming under observation he noticed a numb sensation in the hypothenar muscles of the right hand, and upon this followed wasting of these muscles, and also of the interossei, and to some extent of the hand generally. Soon afterwards the third and fourth fingers became rigidly flexed upon the hand. Three years prior to the occurrence of wasting of the muscles he had noticed several light-brown patches on the upper and lower extremities, and that the skin in the centre of these patches was numb to the touch. The spots were distributed over the skin of the extremities, and presented the anaesthesia of the central parts in a very marked degree. There was, also, a good deal of wasting of the extensors and peronei of the right leg. The ulnar nerve above the elbow and the peroneal nerve behind the fibula were enormously thickened, standing out like small ropes; pressure on these parts sent shooting pains down the arm and leg respectively.

Dr. Tilbury Fox considered the disease to be anæsthetic leprosy, and recommended the free and persistent use of quinia. In addition Dr. Anstie prescribed cod-liver oil and faradisation of the skin-patches and the wasted muscles. This treatment was followed by so much improvement that the patient was able to return to India and to duty as a civil engineer.

Dr. Anstie refers to three other cases that he has had the opportunity of observing.

Dr. Fox reports the case of a girl, aged 10 years, who it was believed contracted tubercular leprosy from her wet-nurse. The first symptoms did not show themselves until the child was between two and three years of age. When first seen by Dr. Fox she presented in addition to the brown anæsthetic patches thickening of the skin in various parts of the body, especially of the nose, eyebrows, lips, shoulders, and arms. The left ulnar nerve was enlarged. Quinia was prescribed in large doses, with the same effect as in the other case. The oil of cashew was applied, after the Dr. Beaupurthuy fashion, to the face, and with a certain degree of benefit.

Dr. DYCE DUCKWORTH gives a short account of *Four Cases of Molluscum Contagiosum which occurred in one Family*. Although admitting that it has many of the characteristics of a contagious disease, the author says that his attempts to inoculate it have failed on four or five occasions, although the pultaceous contents of the tumours were well rubbed into parts richly furnished with sebaceous glands. In a foot-note we are, however, informed that Dr. Paterson, of Leith, has successfully inoculated this disease.

*A Case of Progressive Muscular Atrophy* is reported by EDWARD HEADLAM GREENHOW, M.D. The patient died of lobular pneumonia, death having been hastened by the inability of the patient to expectorate the products of the inflammation. After death the affected muscles were found to have undergone three different forms of change. 1. Simple Atrophy. 2. Atrophy arising from granular degeneration. 3. Atrophy produced by parenchymatous inflammation, causing the so-called waxy appearance. The microscopial examination of the spinal cord showed that the central canal was much enlarged, and that there existed very wide perivascular spaces around the small arteries. The substance of the transverse commissure around and on each side of the canal was more than usually studded with nucleated corpuscles of connective tissue. In the dorsal region there was also found an appearance as of two secondary or supplemental canals or diverticula from the principal canal, but no distinct passage of communication was evident. The unusual size of the perivascular spaces Dr. Greenhow attributes to long-continued distension of the vessels.

*A Case of Paralysis of the Senses of Smell and Taste, following Concussion of the Brain*, is reported by BURNETT YEO, M.D., in which it is difficult to understand what was the nature of the lesion which produced paralysis of the nerves of taste and smell, and of no others. Notwithstanding that the patient exhibited a great intolerance of its action, he recovered after treatment by iodide of potassium. He was severely iodised by two doses of five grains each, and it was only by reducing the dose to one grain three times a day that its exhibition could be borne, and even then, after a short time, it set up irritation of the mucous membrane, and so purged him.

Dr. Yeo states that the defect in taste was not simply the result of the loss of smell, as it was ascertained that the patient could not distinguish a solution of quinia, a substance without odour, from water.

*Case of Enteritis, illustrating the dangerous effect which a purgative may have in such cases*, is related by CHRISTIAN BÄUMLER, M.D. The author calls

attention to the fact that symptoms of intestinal inflammation are sometimes very much aggravated by the exhibition of even so mild a cathartic as castor oil. Immediately after the castor oil had begun to act in the case reported, all the previous symptoms returned, and once or twice the patient's condition gave rise to considerable anxiety; slight symptoms of collapse were presented, and six days elapsed before the febrile and local symptoms again subsided.

*A Case in which a wide Daily Range of Temperature in Rheumatism was associated with Disease of the Heart, Vegetations on the Mitral Valve, and Infarction of the Spleen,* is reported by JAMES ANDREW, M.D. The widest diurnal range showed in this case was six degrees and two-tenths, and occurred at the time that the infarction of the spleen was believed to have taken place.

*A Case of Left Hemiplegia, with Convulsion of Paralyzed Parts, and Impairment of Sensation; Vomiting; followed after a time by Coma; Tumour occupying entire Right Occipital Lobe, with small Tumour on upper part of second ascending Parietal Convolution,* is recorded by W. H. BROADBENT, M.D. The size of the tumours found at the autopsy of the patient, whose history is reported in this paper, is worthy of remark, when considered in relation to the short duration of the symptoms (seven weeks). The one in the occipital lobe was as large as an orange, and the other was about the size of a cob-nut, the comparison which Dr. Broadbent uses, but which we fear will not convey any very definite idea to the minds of the majority of our readers. In regard to the larger tumour, it is said that its margin was well defined, that it was firm in consistency, and of a yellow colour, dotted with red, except in the centre, where it had a gelatinous appearance. Dr. Broadbent is disposed to attribute the hemiplegia with convulsion of the paralyzed limbs to the smaller of the tumours, which involved the gray matter of the convolutions, and the gradually deepening coma to the larger growth in the occipital lobe.

J. H. H.

We shall next invite the attention of our readers to those papers which are particularly interesting to surgeons, and first to a

*Case of Melanotic Tumour of the Eye treated by Excision of the Globe, and the application of the Chloride of Zinc Paste to the remaining structures within the orbit;* by GEORGE LAWSON.—A short abstract of this paper appeared in the Quarterly Summary of this Journal, in the number for January, 1872, page 273. Mr. Lawson's case is of much interest, and is practically valuable as illustrating a mode of dealing successfully, for a time at least, with an affection ordinarily regarded as irremediable.

*Case of very extensive Rodent Cancer of the Face extirpated by Excision and Cauterization;* by J. W. HULKE.

*Case of Rodent Cancer involving the right upper eyelid, and extending into the orbit and on to the nose, treated successfully by Excision and Caustics;* by GEORGE LAWSON.

The treatment in both of these cases consisted in extirpation with the knife, followed by the actual cautery to check hemorrhage, and in the subsequent application of a paste of chloride of zinc. From Mr. Hulke's remarks we extract the following:—

“ All surgeons, with scarcely an exception, are, I believe, agreed upon the propriety of extirpating with knife or caustic the sore known under the names of Jacob's ulcer, cancroïd ulcer, rodent ulcer, rodent cancer, when its superficial extent is not very large, when it is restricted to the skin, and when it has not extended into the mouth, the nose, or orbit. But when the ulcer has spread into one of these cavities, when it has eroded the bones, and when it has attained considerable superficial dimensions, then, if any concurrence of opinion exist,

it inclines, I think, towards non-interference. This is much to be regretted, for even in very advanced stages there are cases such as the present one, which are really less desperate than they appear on a cursory examination, and where surgery can do a great deal. . . . The direct danger [in the mode of treatment recommended] is twofold: that which is common to every large operation performed on a person in the decline of life, and that which arises from the situation of the ulcer. . . . The first may be much reduced if care is taken to avoid any unnecessary hemorrhage, if the suppurating edges of the wound during the detachment of the eschar, and its surface after this has fallen off, are kept scrupulously clean and sweet with an antiseptic dressing; and lastly, but not least, if the patient's strength is judiciously supported, and pain kept down with opium. As regards the dangers which arise from the situation of the ulcer, these are of course greatest when the orbit is implicated, owing to the nearness of the brain. Yet even here experience has proved that both the actual cautery and the caustic zinc may be used safely if due care is taken, for the hot iron applied to the surface of a bone kills it much less deeply than any person who has never used it would be disposed to believe, and the chloride of zinc paste is one of the most manageable of escharotics, contrasting in this respect most strongly with potassa fusa and potassa cum calce, so that it has been safely applied to the roof of the orbit when the dura mater was already exposed."

With regard to the possibility of recurrence after extirpation, it is to be remembered that even those pathologists who look upon the rodent ulcer as a true cancer, admit that it is far more amenable to treatment than any other form of cancer with which the surgeon is called upon to deal.

*A Wound of Intestine during Ovariotomy, with Recovery*; by CHRISTOPHER HEATH.—An abstract of this paper appeared in the number of this Journal for January, 1872 (page 265).

*Case of Paralytic Strabismus cured by Tenotomy and localized Faradization with the Primary Current*; by ROBERT BRUDENELL CARTER.

The treatment in this case consisted in (1) thorough division of the tendon of the internal rectus of the squinting eye, (2) localized faradization of the external rectus with the primary current of a Stöhrer's battery, and (3) a second tenotomy of the internal recti tendons of both eyes. In order to apply the localized faradization, Mr. Carter has devised a pair of rheophores which are so arranged as to be conveniently held in one hand, while the other remains free to control the eyelids. The ends of the rheophores are covered with thin leather to retain moisture, and are placed upon the conjunctiva directly over the affected muscle.

*Two Cases of Popliteal Aneurism, and the Treatment adopted*; by J. COOPER FORSTER.

*A Case of Popliteal Aneurism cured by Mechanical Pressure (indirect)*; by RICHARD BARWELL.

In Mr. Forster's first case, pressure and flexion were employed, both with and without the aid of anaesthesia, and a cure was finally obtained after the treatment had been persevered in for eight weeks. In the second case instrumental pressure was made for three days without benefit, but a cure resulted from the employment of digital compression completely interrupting the blood current for three and a half hours, and followed by less rigorous pressure for six or seven hours longer. Mr. Forster proclaims himself an advocate of what is known as the "rapid pressure treatment" of aneurism, in contradistinction to the slower but, as we cannot but regard it, surer and safer method introduced by Bellingham and the Irish school, and declares that he has "always persevered with pressure," and has "never yet tied the femoral artery for the cure of a popliteal aneurism"—a statement of experience which would be more valuable, if we

knew how many cases of popliteal aneurism it had fallen to Mr. Forster's lot to treat.

In Mr. Barwell's case Carte's apparatus was employed, and efficient pressure was maintained for between four and five days, the compressor being kept in place altogether for a week. A most vivid description is given in the patient's own language, of his sensations and sufferings while the pressure treatment was being carried out, and Mr. Barwell adds some judicious remarks as to which cases are suitable for the "rapid," and which for the "gradual" mode of applying compression. The following sentences call attention to a matter of some importance, and serve as a valuable postscript to Mr. Forster's paper which we have just been considering :—

"I now come," says Mr. Barwell, "to a point, mention of which I have seen nowhere, and yet which ought to be thoroughly well known to all who would thus treat an aneurism, viz., the pain, numbness, and loss of power which follow this treatment. One of the patients whose case Mr. Cooper Forster read the other night as a very rapid cure, is an acquaintance of mine, and he suffered very considerable pain six years after his cure when I last saw him, sometimes unprovoked, sometimes provoked by walking."

*Two Cases of Cancer of the Female Breast treated with Condurango, a remedy reputed to be of great efficacy in Cancer, lately introduced from South America;* by JOHN W. HULKE.

*Cases of Cancer treated by Condurango;* by CAMPBELL DE MORGAN.

These papers have already been briefly noticed in the Quarterly Summary of this Journal for April, 1872 (pp. 547, 548). The following are Mr. Hulke's conclusions as to the efficacy or rather want of efficacy of the drug in question :—

"In neither of these cases were any of the remedial effects ascribed to condurango perceptible; the scirrrous swelling did not soften, lessen, and disappear, but it even increased and extended. The ulcers did not clean and cicatrize, but they fungated, sloughed, and enlarged with varying quickness, as they are wont to do in such cases. Secondary cutaneous tubercles appeared, multiplied, blended in plaques, and ulcerated; and the lymphatic glands became infected and enlarged. Instead of the 'reconstitution' of the patient, the appetite became capricious and grew less, and there was increasing loss of flesh and strength. In short, the progress of the disease in these cases, as in all my earlier ones, was neither arrested nor even favourably modified. As a remedy for cancer, condurango is, as far as my present experience goes, valueless."

Mr. De Morgan's experience has been very similar to Mr. Hulke's: while it did not appear that the condurango exercised any positively injurious effect, it certainly was productive of no benefit, and the patients to whom it was administered died if anything rather more quickly than it appeared probable that they would do at the time of their admission to the hospital.

*Two Cases of Recto-vesical Fistula treated by Colotomy,* are related by THOMAS BRYANT. The fistula in each case was the result of simple ulceration beginning in the rectum, and, in both instances, complete relief was afforded by colotomy, the patients remaining well when last heard from, two years after the operations. In quoting Mr. Holmes's case of colotomy for vesico intestinal fistula, Mr. Bryant refers incorrectly to the "Medico-Chirurgical Transactions for 1869-70." The case in question was published in the volumes of the Medico-Chirurgical Transactions for 1866 and 1867, and our readers will find an account of it in the numbers of this Journal for July, 1866 (p. 251), July, 1867 (p. 218), and April, 1868 (p. 487).

*Cases of Distension of the Antrum of Highmore;* by J. WARRINGTON HAWARD.—Three cases are narrated in this paper, the first two being examples of

simple distension of the antrum by fluid, and the third being complicated by the presence of a solid growth of a recurrent nature. Mr. Haward justly lays stress upon the importance of making an opening into the mouth at an early period, in all cases of fluid distension of the antrum, in order to avoid the formation of a fistulous orifice externally, and the disfigurement which would then inevitably follow upon cicatrization.

*Case of Congenital Hypertrophy of the Tongue*; by GEORGE LAWSON.—Mr. Lawson's patient was a child, fifteen months of age, but so stunted and ill-developed as to appear not more than three months old. There is no record of any treatment having been adopted.

*Four Cases of Impassable Stricture* are related by W. F. TEEVAN. Two of these cases were cured by dilatation—so that we do not see the propriety of calling them cases of *impassable stricture*—and the other two by the operation of external perineal urethrotomy without a guide, or, as it is more commonly designated, perineal section. This procedure Mr. Teevan calls “the old French operation of ‘La Boutonnière,’” but as a matter of fact the term “*boutonnière*” was applied by Desault and others to all operations which had for their object the establishment of an opening from the perineum into the bladder, and hence includes, in addition to the “perineal section,” both Syme's and Cock's operations, and even the now obsolete method of puncturing the bladder through the perineum. The mode of treatment adopted by Mr. Teevan, he declares is “practically unknown” in England; from which assertion we are forced to conclude that the writings of Arnott and Guthrie are no longer esteemed by British surgeons so highly as they still are, we are glad to say, in this country.

Mr. F. J. GANT reports a case of *Spontaneous Gangrene of both Feet in a Boy, arising from Disease of the Heart; Double Amputation; Recovery from Operations; Death from Cardiac and Pulmonary Conditions*. This case reads to us very much like one of frost-bite, and we cannot but think Mr. Gant's pathology a little fanciful when he declares that the gangrene was caused by the diseased state of the heart, and that it was “essentially *cardiac*, although the immediate and existing [Qu. exciting?] cause may have been exposure to cold;” we would venture to suggest as a more reasonable explanation that the case was one of frost-bite, and that the diseased visceral condition of the patient rendered his tissues abnormally susceptible to the effects of exposure.

*Aneurism of the Ascending Portion and Arch of the Aorta, treated by Ligature of the Left Carotid Artery*; by JOHN COCKLE, M.D. Communicated by CHRISTOPHER HEATH.—This case is one of much interest, as showing that so grave an affection as aortic aneurism may be occasionally, in some degree at least, amenable to surgical treatment. The left carotid artery was tied by Mr. Heath above the omo-hyoid muscle, with a carbolized catgut ligature, and a dressing of cotton-wool applied to the wound, which was found, on inspection on the eighth day, to be perfectly healed by the first intention. The patient's condition was very much ameliorated by the operation, and though, as Dr. Cockle justly remarks, it would be premature to assert that a perfect cure had been obtained, yet at the last report, five months subsequently, the improvement had continued and bid fair to be permanent.

*Case of Removal of the Second Metatarsal Bone, and subsequent Excision of all the Tarso-Metatarsal Articulations*; by TIMOTHY HOLMES.—The patient was a middle-aged man who suffered from caries of the second metatarsal bone, resulting from an injury which had been received four months before his admission to St. George's Hospital. The removal of the diseased

bone was followed by the formation of various abscesses, and ultimately all of the tarso-metatarsal articulations became involved. Excision was performed by raising a dorsal flap, as in Lisfranc's amputation, then disarticulating and sawing off the corresponding joint-surfaces. The limb, after the operation, was placed in a box-splint, and simple dressings were applied to the wound; the result of the case promised to be entirely satisfactory when the patient was exhibited to the Society, three months subsequently.

*Case of Gastrotomy;* by THOMAS SMITH.

*Two Cases of Gastrotomy;* by WILLIAM MAC CORMAC.

These cases add three more to the list of unsuccessful attempts to relieve oesophageal stricture by opening the stomach. Mr. Smith's patient died of peritonitis on the eighth day; Mr. Mac Cormac's, of exhaustion on the third; and Mr. Le Gros Clark's,<sup>1</sup> of bronchitis and peritonitis on the seventh. With regard to the cause of death, Mr. Smith points out one fact which he justly characterizes as significant, viz.: that, with one exception, every patient who has survived the first three days after the operation, has died of peritonitis.

Gastrotomy, or, as Sédillot has more accurately named the operation, *Gastrotomy*, has now been performed upon sixteen<sup>2</sup> occasions, and in every instance, we believe, with a fatal result. Surely enough experience has been gained with this operation to show that no reasonable hope of benefit can be afforded by its repetition.

From our comments upon, and extracts from, the various papers which compose the fifth volume of the Clinical Society's Transactions, our readers may infer that the present issue well sustains the reputation of its predecessors. Would that every large city had a Clinical Society! Would that every Society had such able and industrious members as the Clinical!

J. A., JR.

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ART. XXI.—*Transactions of the Edinburgh Obstetrical Society.*—Sessions 1869-70-71. 8vo. pp. 455. Edinburgh: MacLachlan & Stewart, 1872.

THE size of this volume, covering as it does the work of but two years, denotes a commendable degree of activity upon the part of the members of the Society who have contributed to it, and shows a growing increase in the amount of material offered for publication, making this second volume much more voluminous than the first. In the following pages we shall call attention to those papers in the volume which appear to us to have most interest.

*A Case of Rigid Os treated by Hydrochlorate of Apomorphia* is related by ALEXANDER MILNE, M.D. The subject of it was in labour with her fourth child: os size of sixpence after three or four hours active pains; little progress made in next two hours; chloroform; attempt to dilate with the finger; two grains of tartar emetic resulting in nausea and vomiting; 25 minims of liq. morph. hydrochlor. were successively resorted to, but without improvement. A solution containing  $\frac{1}{4}$  gr. of hydrochlorate of apomorphia was next resorted to, the patient having been in labour about 18 hours. In ten minutes the patient

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<sup>1</sup> Mr. Clark's case is the second reported by Mr. Mac Cormac.

<sup>2</sup> Sédillot, Forster, and Sydney Jones have each operated twice, and Fenger, Curling, Durham, Maury, Lowe, T. Smith, Mac Cormac, Clark, Troup, and Mason, each once.

vomited, the os was soon found to yield, the pains increased in force, and in a few minutes delivery was accomplished. Dr. Milne does not claim that this rapid result establishes the value of the last remedy used, as the effect might have followed from the combination of medicines employed; but thinks the apomorphia well worthy of a trial in similar cases, until its true value is established.

*Removal of a large Uterine Fibrous Polypus*, by J. MATTHEWS DUNCAN, M.D.—Patient 44; mother of a child born 15 years ago; had felt a tumour in the abdomen for 12 years, during which time she had had a profuse thin purulent discharge; uterine hemorrhage at times very great; appearance pale, anaemic, and sallow. The tumour was cut away in portions by a curved écraseur without much loss of blood, and its broad base enucleated, after an operation of an hour and a half. The tumour weighed 2 lbs. 6½ oz.; patient much exhausted; perineum considerably lacerated; made a good recovery. The main difficulty in the removal of the mass was the narrowness of the vaginal outlet, and the impossibility of drawing the tumour down through it. The plan of operation, in so far as it was possible to carry it out, was to spirally cut down the tumour, and, at the same time, avoid completely detaching the removed part, causing an elongation of the mass, as in the *turned, toy-snake*. This operation—proposed by Dr. Alfred Hegar, of Darmstadt—is one of almost impossible performance with an écraseur, as proved by Dr. Duncan's case, in which the incised portions were repeatedly torn away. Where it can be done, Dr. Duncan considers the enucleation of the pedicle much preferable to cutting it off.

*A Case of Puerperal Convulsions, with Amaurosis, treated by bleeding and version*, is recorded by ANGUS MACDONALD, M.D. The subject of it was æt. 32, at full period; headache for several days; after a sleep of about a quarter of an hour awaked to find her sight entirely gone. Convulsions soon set in, and, after several attacks, became very violent, with great lividity of face. Bled to fʒ xij; next convulsion less severe and face much less congested; dilatability of os uteri very much improved; turned and delivered a living foetus, under influence of chloroform. Urine highly albuminous, but no tube casts; no more convulsions after delivery; consciousness and sight slowly restored, being reported perfect at end of 32 hours; made a good and rapid recovery.

This communication created a considerable discussion upon the effects of the old system of bleeding in convulsions, and the propriety of its entire abandonment as at one time advocated by many. The general opinion of the members appeared to be in favour of depletion as the proper remedy. They were more divided as to the effect of bloodletting in relieving rigidity of the os uteri.

*Child Born without an Occipital Bone*, described by CLARKSON CUTHBERT, M.D.—The subject of this malformation was well formed in body, but had a stiffness of the lower jaw, which prevented its nursing, except from a bottle. It died in convulsions on the eleventh day.

*Umbilical Cord only 10 inches long*, exhibited by JAMES YOUNG, M.D.—Woman delivered without difficulty, and not any experienced subsequently, except in applying the ligature, the child being in close contact with the mother. Dr. Young said he could find no report of a case with so short a cord.

*Case of Placenta Prævia*, reported by ANGUS MACDONALD, M.D.—The chief value in this, is the evidence given of the effect of entire separation of the placenta, in arresting hemorrhage, which the reporter says was “absolute and complete,” although the membranes were intact, and no contraction of the

uterus so as to diminish its size was possible. In fact there was but little uterine action at the time, and until after the membranes were ruptured. Dr. Macdonald recommends the practice of Dr. J. M. Duncan in cases of *placenta prævia*, viz.: dilatation by the Barnes' bag, and version, before the patient is weakened by much loss of blood.

*Hydrate of Chloral in Puerperal Convulsions*, by ALEXANDER MILNE, M.D.—A woman in labour with her fourth child, and progressing towards conclusion, was frightened by the noise of a falling body, and went into a convulsion. The child was born, and uterine action finally terminated, but still the fits continued at short intervals. Sixty grains of the remedy were given, and no cessation of eclampsia took place, until about fifty minutes were passed, when the patient fell into a heavy sleep which lasted eight hours. She awoke confused, but free from headache or sickness, and made a good recovery.

Sir James Y. Simpson believed that this was the first case of puerperal convulsions in which hydrate of chloral had been employed.

*Case of Puerperal Tetanus* is related by W. CRAIG, M.B., etc. The subject of this rare disease was aged 37. She had previously given birth to seven children; and made good recoveries after each labour. Her eighth child was delivered by a midwife, who failed to remove the placenta, which was retained by inertia of the uterus. This occasioned violent hemorrhage, and Dr. Craig was called in. Case made fair progress until the ninth day, when tetanus set in; with opisthotonus on the tenth, and the woman died in 40 hours. She was treated with tincture of Indian hemp.

From the discussion which followed the reading of Dr. Craig's paper, it would appear that puerperal tetanus, especially at full term, as in this case, is exceedingly rare in Great Britain. Like traumatic tetanus it is much more prevalent in the torrid than the temperate zone.

*The Stethoscope as a Means of Diagnosing the Sex of the Child*, by JAMES CUMMING, M.D.—This paper contains a series of 59 experiments, to determine if possible, by the frequency and distinctness of the pulsations of the foetal heart, whether the child be male or female; the theory being, that the former have the more distinct sounds, and a range of from 120 to 140; and the latter, 140 to 160. In the table given, the minimum, 116, proved to be a female; and one of 158, a male. The diagnosis was correct in 40, and not so in 19. The fact of these variations and exceptions would appear to render the process one of very little reliability.

*Redundancy of Fingers and Toes*.—Dr. CHARLES BELL reported a case of premature birth, where the foetus had six fingers upon each hand. The mother stated that a former child had twelve fingers and twelve toes, and that both father and grandfather were similarly deformed. This inheritance is not at all uncommon. The reviewer has met with an instance where there were six perfect toes on each foot of both father and son, the sixth toe having its complete osseous connections with the external cuneiform bone. He has also found in a father and daughter a union of the second and third toe of each foot up to the second joint. These appear to descend as other peculiarities of likeness, from parent to child, and are very little more remarkable than many curious resemblances in features, teeth, etc.

*Remarks on Pelvic Peritonitis and Pelvic Cellulitis, with illustrative Cases*, by LAUCHLAN AITKEN, M.D.—It will be seen by the title of this paper, that Dr. Aitken adheres to the old phraseology, instead of adopting the *Perimetritis*, and *Parametritis* of Dr. Matthews Duncan, believing it much less confusing

than the latter. He remarks: "The terms show to any one at a glance, the nature of the affection, whether it is inflammation in the cellular tissue, or serous membrane of the pelvis, and do not limit the seat of the disease to the immediate neighbourhood of the uterus, as I maintain the words perimetritis and parametritis must do."

As it is impossible to enter into a full review of this elaborate paper, we must content ourselves with a few extracts upon important points. With regard to the traumatic origin of pelvic peritonitis, the author says:—

"Among the determining causes of the traumatic variety I may mention the use of the tangle-tents to dilate the cervix, . . . cutting operations on the uteris, the excision of polypi, the application of solid nitrate of silver to the interior of the womb, or of caustic potash to the cervix, and the wearing an intra-uterine pessary, which have all proved the exciting causes of such cases; and among others which have been mentioned, and which we can readily conceive may have produced the inflammation, we find recorded venereal excesses, injections of fluid into the uterine cavity, and chances on the cervix."

With regard to the differential diagnosis between affections of the serous membrane and cellular tissue of the pelvis, Dr. Aitken remarks:—

"It is to the physical signs we must chiefly trust to guide us correctly; and certainly I can confidently say, that there are few more difficult points in physical diagnosis than this, the difficulty being in many cases greatly increased by the fact that, unless under chloroform, the combined internal and external manipulations necessary to satisfy us, is usually at first too painful for the patient." He does not agree in opinion with Dr. Gaillard Thomas, of New York, as given in his work on the Diseases of Women, and says that, "in some cases, his statements would answer for both complaints, while in many others, they might be reversed without impropriety."

"In by far the greater majority of cases of pelvic cellulitis, we find on internal examination, that the induration, or swelling, is on one or other side of the uterus, and that it is only very rarely, that the whole roof of the pelvis seems blocked up by the hard, stony mass, so common in cases of pelvic peritonitis. The tumour in most cases of cellulitis is found principally in one or other of the iliac fossæ, and apparently closely connected to the iliac bones, or if it has not advanced so far, to the pubes; while the tumour, if felt at all through the abdominal walls in peritonitis, is usually more in the mesial line, or if situated laterally, does not by any means seem so intimately blended with the bones. An important point of the diagnosis of pelvic cellulitis, as well as of pelvic peritonitis, is the immobility or fixation of the uterus—an immobility which, in many cases of peritonitis when it is fixed all round, may be said to be absolute, while in cellulitis it rarely if ever happens that the fixation is so complete. . . . In cellulitis, the uterus is usually pushed to the opposite side of the pelvis from that occupied by the phlegmon, whereas, in some cases of peritonitis, the body and fundus of the womb are so completely lost or enveloped amidst the exudation, that it is only by the use of the sound, when such a use is justifiable, that we can determine its exact position in the pelvis." (p. 100.)

As a means of depletion in these affections, Dr. A. prefers leeches around the anus, to applying them through a speculum, to the cervix, objecting to the use of this instrument on account of the hot and irritable condition of the vagina. He recommends greater depletion in the former than latter of the two diseases; and, to relieve the suffering of either, but particularly the peritonitis, has greater faith in opium than any other anodyne, using it chiefly by suppository and hypodermic injection, in the latter case employing the bi-meconate of morphia, gradually increased from  $\frac{1}{4}$  grain to a grain, or more, twice a day. To allay vomiting, he uses ice, dilute hydrocyanic acid, bismuth, oxalate of cerium, charcoal, cherry-laurel water, lime-water, blisters, opium, and the spinal ice-bag. He quotes from Bernutz, who very highly recommends conium,

as a narcotic to the genital organs, given in full doses so as "to produce slight derangement and a kind of hallucination."

*On the Production of Presentations of the Face.*—In this article, by J. MATTHEWS DUNCAN, M.D., the writer aims to prove that this form of presentation does not result from impinging of the occiput upon, and arrest of progress by, the pelvic brim. He remarks: "It appears to me to be highly probable that the chief cause of face cases, is obliquity of the uterus in any direction, insuring a curvature of the genital canal at the brim of the pelvis; that this cause operates when the forehead of the child is placed near the concavity of the curved canal, or nearest the line of the propelling force; and that the *dolicocephalous* form [of the fetal head] will greatly favour the transformation under these circumstances of a vertex into a face case." (p. 114.)

*On the Synclitic Motion of the Fœtal head in the Mechanism of Parturition*—We simply call attention to this mechanico-mathematical paper, by J. MATTHEWS DUNCAN, M.D., in which the teachings of Kueneke, of Berlin, are fully and elaborately discussed, as its nature renders it impossible for us to give the views expressed in a sufficiently condensed form; and we therefore refer the reader, who may feel an interest in the matter, to the original article, and to a masterly exposition of the subject, which appeared in the Nos. of this Journal for Oct. 1870, p. 325, and July, 1871, p. 17, by the late Hugh L. Hodge, M.D.

*On the Influence exerted by Chloral on the Pain of Parturition.*—E. LAMBERT, Esq., Paris, records eleven parturient cases, in which the hydrate of chloral was freely used. Mr. L. remarks of this remedy, "As the hypnotic of the first stage, chloral stands unrivalled; we have only to remember that opium, our only sure refuge, must be administered with the knowledge that we are conspiring, though for a higher end, against the course of labour." We give a general summary of the cases to show the effects produced.

1. Age, 25; second pregnancy; chloral could not be retained more than a few minutes, either by the stomach or rectum.

2. Age, 22; primipara; slept between pains; sometimes answered questions when apparently unconscious; appeared to know when the head was delivered, but when awake five hours afterward, seemed to have forgotten all about it.

3. Age, 26; primipara; slept in intervals; pains not very severe; not fully conscious more than two-thirds of the duration of each; said that she experienced great relief.

4. Age, 40; tenth pregnancy; pains scarcely at all alleviated; felt very dizzy after second dose; slept well after delivery.

5. Age, 18; primipara; two doses of 3*j* each; slight delirium; very little exhibition of pain.

6. Age, 34; eighth pregnancy; twin birth; chloral with second; vomited frequently; dead fœtus delivered with forceps under chloroform.

7. Age, 19; primipara; fœtus 6*½* months; ergot 3*j*, and chloral 3*j*, given conjointly; appeared to neutralize each other.

8. Age, 27; second pregnancy; ergot and chloral as in the last case; marked cerebral disturbance; no relief from suffering; breech presentation; child dead.

9. Primipara; anaesthesia complete for about half an hour.

10. Age, 24; second pregnancy; made no complaint at the passage of the head, and remained unconscious about forty minutes afterward; then became somewhat delirious and talked a great deal until she fell asleep.

11. Age, 23; primipara; condition of perfect quiet; pupils rather large, but

perfectly contractile; labour arrested with the os fully dilated; no contractions for some five hours; forceps used under chloroform.

Dr. Lambert regards chloral as "an agent of great value in the relief of pain during parturition." He recommends that it should be administered in doses of 15 grains every quarter of an hour until some effect is produced. Some patients, he says, will require drachm doses, and it is better to produce an anaesthetic effect by  $3\text{ij}$ , given in the space of two hours, than  $3\text{j}$  given singly. He believes the remedy to be chiefly adapted to the first stage of labour for the relief of pain from uterine contraction, although it has been proved to produce anaesthesia throughout labour, under favourable circumstances. (See No. of this Journal for Oct. 1870, p. 565.)

*On some of the Dangers attending the Use of Tangle Tents.* By LAUCHLAN AITKEN, M.D.—The *Laminaria digitata* was recommended first, in 1862, by Dr. Sloan, of Ayr, and was brought extensively into use by the late Prof. Simpson. Dr. Aitken says of it, in regard to its employment in contracted and strictured cervices, "We are frequently compelled, in such a case, to accept the tangle tent as an unavoidable necessity." He specially refers to the fact, that many authors, such as Graily Hewitt, Churchill, Courty, of Montpellier, and Scanzoni, make little or no reference to the dangers to be met with; whilst others, as Gaillard Thomas, of New York, speak particularly of them, the last reporting a fatal case of tetanus following the employment of two tents, and other severe complications which had come under his notice.

"I may point out that what has seemed to me the most common of all the evil consequences arising from the use of the tents, has been the development of inflammatory action in the pelvic serous membrane or cellular tissue; next the production of endometritis; and finally, the causation of a number of what may be looked upon as accidental complications, such as hemorrhage from the uterus, pelvic haematocele, laceration of the cervical wall, spasmodic contractions of uterine muscular tissue, hysterical convulsions, and other minor mishaps." . . . "I have never known a fatal case in which I could directly attribute the death to the use of the tent, although I have certainly seen patients succumb to the effects of uterine operations for the performance of which the cervical cavity had necessarily been enlarged." (p. 188.)

To avoid the dangers mentioned, Dr. Aitken lays down the following very important rules, which he says have reduced the results, in his hands, to the production of slight and transient forms of cervical catarrh. (See No. of this Journal for Oct. 1870, p. 559.)

In the introduction of tents, Dr. Aitken dilates the vagina with a Sims speculum, preferring this instrument, because it enables him to draw forward the anterior lip of the os with a tenaculum when required, and to make use of other appliances, such as probes, etc., which may be found necessary.

*Dorsal Displacement of the Arm behind the Head, in the Left Occipito-posterior Position.*—Mr. E. LAMBERT gives a description of a case of this rare form of difficulty, in which the right arm came down; and presents a table of seven reported instances, his being the only one in the fourth position. By version, under considerable difficulty, he delivered the foetus, which, after a half hour's work, breathed satisfactorily. The woman was thirty years old; in labour twenty hours, and with her fifth child. She made a rapid recovery.

*The Immediate Treatment of Laceration of the Perineum.*—Dr. THOMAS MOORE MADDEN, of Dublin, in this paper, gives the experience of one who has been repeatedly called to repair the damages resulting from ignorance and want of care, in the hands generally of midwives practising among the poor of Dublin.

"By immediate treatment, I mean the introduction of the sutures within two hours from the occurrence of the accident. In the great majority of cases, however, the sutures were introduced as soon as the placenta was expelled."

After trying various forms of suture, he recommends the silver wire, and this not to be left in longer than from thirty-six to forty-eight hours. To secure cleanliness, the urine is to be drawn off with a catheter, and the bowels kept confined. The knees also to be bound together, and opiates employed until union is complete; the nates to be approximated by pads, confined with a tight binder.

Prof. Simpson and Dr. Keiller expressed the opinion that the sutures were removed too soon. Drs. Sidey and Bruce recommended the horse-hair suture. Dr. Wilson remarked that the great majority of cases healed well enough without any interference. Dr. Keiller very justly replied, that in spontaneous cures the union was frequently very superficial and the perineum subsequently useless.

For the purpose of approximating the nates, there is no better plan than the use of broad strips of adhesive plaster made of strong linen, such as are used in making extension in fractures of the thigh. In women having very large nates, there is no necessity of any pressure, except the confinement of the thighs together, with a soft pad between the knees. In deep lacerations down to the sphincter ani, the great obstacle to union is the constant vaginal discharge entering the wound on its inner face.

*The Function of the Perineum in Procidentia Uteri.* By J. MATTHEWS DUNCAN, M.D.

*The Connection between Laceration of the Perineum and Prolapsus Uteri.* By ALEXANDER MILNE, M.D.

We associate these two articles together, as evidence of the entirely opposite views held by careful observers upon the action of the vagina, sustained by the perineum in giving support to the uterus; the former teaching that rupture of the perineum "is not a cause of prolapsus, or procidentia uteri;" that "the perineum has nothing to do with the maintenance of the uterus in its natural position;" and that the only influence a rupture can have is to favour a more direct procidentia, in cases where the causes for the displacement are in action. Dr. Milne takes a directly opposite ground, maintaining "that the perineum in its normal state does aid in supporting the uterus, and when lacerated favours the descent of that organ;" and "that rupture favours prolapsus uteri by destroying the curvature of the vaginal canal, and making it approach the perpendicular." Various arguments are adduced by each writer in proof of his own particular views and opinions, and the Society appears to be very much divided upon the question; Drs. Keiller, Bell, James Young, and Cuthbert, rather favouring the views of the former; and Drs. Ritchie, Gordon, Murray, and Bruce, those of the latter.

*A Case of Spontaneous Version* is related by STANLEY HAYNES, M.D. Mrs. M., aged 37; eighth pregnancy; left occipito-anterior position of head; os dilated to two inches. Patient whilst seated upon the night-stool felt a sudden and great movement within, followed by a sensation of the descent of the foetus. She hastened back to bed; the breech and right foot were now found presenting, the dorsum of the child being towards the left foramen ovale, and in three pains the birth was completed.

*Case of Early Pregnancy*, by JAMES YOUNG, M.D.—The subject of it was born October 11, 1855; first menstruation, May 11, 1869; sexual intercourse, November 20, 1869; married in March, 1870; gave birth to a large male child,

August 24, 1870; second child born, October, 1871; she was therefore 13 years and 7 months old when she began to menstruate; and 14 years 39 days when she conceived; becoming a mother at 14 years, 10 months, 13 days. We have had recorded in this country two instances where children a little more than 10, became mothers, and one in this city where the girl was 11 years and 3 months old. The precocity of menstruation given is not remarkable, but it is rare even in India, for impregnation to take place so soon after the first appearance of the menses.

*On the Mode of Introducing the Midwifery Forceps.*—This article, by Dr. JAMES CAPPIE, contains but little that is new, but a few directions are given which it may be well to notice. “When the point of the instrument is fairly within the vagina, its progress and direction are at first to be trusted almost entirely to the forefinger pushing on the rim of the fenestrum. I believe those who have never tried this plan will be surprised to find how easily it can be urged onwards, and how safely the proper direction can be given.” Dr. Cappie prefers to place the woman not on her side, as is common in Great Britain, but partly on her side and partly on her back, so as to give room for manipulating the instruments, and to allow their handles a proper sweep.

*On Post-partum Dietetic Treatment.*—Dr. THOMAS CAIRNS, in this article lays down three rules of diet, viz., 1. “The diet should be nutritious in point of quality. 2. It should be small in quantity and frequently repeated. 3. It should be varied in kind and form.” (See this Journal for Oct. 1871, p. 572.)

He says of the usual low-diet system, “Such treatment, I humbly maintain, is utterly inconsistent with the principles of obstetrical pathology. I wish I had time to inform the younger members of the Society the real meaning of the term *labour*, because I am certain, if they knew what it actually expresses, they would at once perceive the necessity, on purely pathological grounds, of *feeding* and not *starving* their puerperal patients. . . . Consider the waste of tissue to which the woman is subjected during her confinement, and you must see that unless that waste be supplied by proper and fresh materials, the patient’s strength must necessarily be very much reduced below its normal condition; and should any untoward event happen to her in these circumstances, the prognosis must essentially be infinitely more unfavourable than if her system had been duly sustained by generous diet. On these grounds I have always been in the custom of liberally administering to my puerperal patients the most nourishing food which their circumstances enable them to procure, such as soft-boiled eggs, beef-tea, soups, chops, steaks, tripe, etc., with a glass of wine daily in addition, or, if the patients prefer it, a glass of ale or porter; and this treatment, I humbly aver, is based on sound pathological principles. . . . Let the food be administered in small quantities at a time, and at such intervals as shall have insured the complete digestion of the previous diet. . . . Common sense seems to suggest, that, with the view of stimulating the appetite, and imparting to the patient a positive relish for food, every advantage should be taken of the culinary art in dressing the same article in different forms, and when these have been exhausted, that one article should be substituted for another during the whole period of the patient’s convalescence.”

The views of the members of the Society appear to have corresponded with those expressed by Dr. Cairns upon the question of diet, and Dr. Keiller remarked that, in the discussion on the same subject before the British Medical Association, most of the speakers were in favour of the views contained in Dr. Cairn’s paper.

*Case of Cephalotripsy*, by Dr. ALEXANDER KEILLER.—Antero-posterior diameter of superior strait something under two inches. Age 21; primipara; head presenting; cord prolapsed; woman rickety and of small stature, delicate in

appearance, and of feeble intellect; cranium punctured and crushed; Lyons and Sidey's forceps used to diminish still further the size of the head. The cephalotribe reapplied, and the crotchet hooked on to the foramen magnum, traction on both made at same time, and the woman safely delivered. She made a good recovery without a bad symptom.

*On the Use of the Constant (Voltaic) Current in Pains of a Pelvic character,* Dr. WILLIAM STEPHENSON in this paper observes:—

“One of the most important questions in practical medicine at present under discussion, is that regarding the influence of the constant current of electricity over pain. Having used the constant current for two years in a large number of different affections, I would lay before you the result of my experience, in so far as it relates to certain classes of cases which come more directly within the domain of this Society. The first class to which I would refer, is the sacral and iliac pains which are met with so frequently in practice. Many of them are purely neuralgic, others muscular, while some are a combination of both forms. Their connection in a large number of cases with some abnormal condition of the pelvic organs is undoubted, but it is no less true that they often persist long after the primary local cause has disappeared.

“The difficulty which we have had hitherto to contend with is, that we did not possess the means of acting directly and locally upon the weakened state of the sacral nerves, which is the true cause of the suffering, or of determining the relations between the pain and the pelvic change. Here, however, the constant current of electricity steps in. Its effect in alleviating pain affords immediate relief, and by its restorative influence gradually removes the affection, while in it also we have the means of determining how far any local mischief is acting as an exciting cause. In some cases where a cure cannot be looked for, great relief to suffering can be given more quickly and with better effect than by the use of anodynes.

Here follow reports of eleven typical cases in proof of the effects claimed.

1. Rupture of perineum; prolapsus uteri; cervix short, with os directed forward; pain in the back and left iliac region for nearly three months, with bearing-down sensation, much increased during the last two weeks.

“A direct current from twenty-five cells was passed through the region of pain for five minutes. The pain in the side was at once relieved, and she felt only a slight uneasy feeling in the back on stooping. Next day the improvement continued; she had felt no pain, but a weary feeling in the back and limbs. . . . The pains, however, returned at times, but never to such an extent as to inconvenience her.

“There are many cases of backache which have their origin in the irritation of the menstrual period, but where a proneness to fatigue in the lumbar muscles renders the affection more or less permanent. Otherwise they are unassociated with any uterine ailment. An error in diagnosis, however, may be readily made, as it is easy by a leading question to get some acknowledgment of the vague term *down-bearing*. Their real nature is muscular fatigue.”

The influence of the constant current is to restore tone to the muscles.

“To obtain these results, what is wanted is not a current of great intensity, but one with a large quantity of electricity of low tension, and twenty-five Daniels' cells are sufficient for ordinary cases. The mode of application I adopt is by two large surface sponge conductors, the one placed over the spine, and the other on the iliac regions and the inner side of the thighs. I have tried the direct applications to the uterus by a vaginal conductor, but I did not find any well-marked advantage over the external method, and it is much less agreeable to the patient. Each application should last five or ten minutes, and the direction of the current should frequently be changed during the sitting.”

*Case of Puerperal Scarlet Fever*, by JAMES YOUNG, M.D.—We refer to this report on account of its having led to a very important discussion on the question of the connection between scarlet fever and puerperal affections.

"Dr. Zeigler remembered being called to see a lady, a patient of his father's, about to be confined. He went directly to her from a scarlet fever case. Two days afterwards the scarlet fever rash made its appearance, and the disease followed a simple course. The lady likewise took the fever, and both recovered. He remembered another case, where scarlet fever broke out in the family of a woman who was just about to be confined. He asked the patient to have the child removed and to get some one else to attend her, but she would do neither. Shortly after delivery she was seized with rigors, phlegmasia dolens set in, and she died.

"Dr. Keiller remarked, that if lying-in women got over the first week well, they are not so liable to take infection after that time. He also remembered a case where he was under the impression that he had been the means of carrying the infection. He had been attending some scarlet fever cases, and went to deliver a lady; three days afterwards she showed symptoms of fever, and nearly died from it.

"Dr. Bell thought it was as dangerous to attend confinement cases after treating erysipelas as after scarlet fever.

"Dr. Young said that, as a general rule, he refused to attend women in confinement if he had puerperal fever in his practice.

"Dr. Jefferies said he had often seen great mischief done by students attending midwifery cases while treating infectious diseases." R. P. H.

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ART. XXII.—*St. Andrew's Medical Graduates' Association Transactions.*

Edited by LEONARD W. SEDGWICK, M.D., Honorary Secretary. Vol. IV., pp. xxiv., 316: Vol. V., pp. xxiv., 251.—London: J. & A. Churchill, 1871 and 1872.

It has given us pleasure in our notices of previous volumes of these Transactions to speak in terms of praise of their contents. Unfortunately we are not able to do this of the last two, for they contain but very few really good papers, most of them being apparently inserted simply for the purpose of filling up the volume. At the fourth session of the Association, the late President, Dr. B. W. Richardson, delivered an address "On the Future of Physic." Dr. Henry Day, who has succeeded to the Presidency of the Association, chose, for the subject of his inaugural address, the "Historical Steps of Medicine."

We shall call attention only to the most important of the papers, and first to those in Volume IV.

Dr. GEORGE W. BALFOUR, in a paper *On the Diagnosis and Treatment of Aortic Aneurism*, advocates the use of iodide of potassium. This remedy, when given in doses of from five to thirty grains, is asserted by Dr. B. to produce, in a fair proportion of cases, a complete cure, and in all a great diminution in the severity of the distressing symptoms of the complaint. The beneficial effects of the iodide are, however, much increased by the patient's maintaining a recumbent position during the continuance of the treatment. In addition to the cases reported by the author in support of his statements, he gives the histories of four patients whom, in consequence of the presence of a pulsation in the second interspace on the left side, and of a murmur best heard in the same position, he supposed to be affected with aneurism of the aorta just above the valves. At the autopsies the aneurisms were not found, and inasmuch as the patients were anaemic, and as in one of them the murmur could not be heard in the erect position, there can be but little doubt that the murmurs were really of blood origin. The author believes that they were produced by compression of the pulmonary artery against the ribs by the left ventricle during its systole. Usually this effect

is prevented by the left lung, which must first be pushed away before the pulmonary artery can be compressed, but in these cases the lung was found after death retracted and the artery uncovered. The disappearance of the murmur in one of the cases, when the patient assumed the erect position, he explained by supposing that the heart's weight prevented the necessary compression of the pulmonary artery. In this connection the author refers to some observations of Dr. Quincke, of Berlin, who had previously shown that systolic murmurs, heard best in the second interspace on the left side, are produced, whenever from any cause, either disease or defective respiration, the left lung is retracted, and that they cease when the lung returns to its normal volume. It appears to us not impossible that the greater intensity of the anæmic murmur in the recumbent position may depend upon a retraction of the left lung, which permits a compression of the pulmonary artery in the manner supposed by Balfour and Quincke. This retraction of the lung is certainly not inconceivable in a condition in which there is a diminished amount of blood in the body, and of which defective respiration is a constant attendant.

In regard to the mode of action of the iodide of potassium, Dr. Balfour says: "It is possible that it may act as a sedative to the nervous system, modifying its action in some unknown manner, and it is probable that its curative action in all these cases is due to this peculiar modification of nervous action—the coagulation of the blood in the aneurismal sac being the result of secondary causes."

Prof. RICHARD NORRIS gives an interesting paper *On the Extrusion of the Morphological Elements of the Blood; the Physical Principles concerned, and the Relations which such extruded Elements bear to Pus and to the so-called fibrinous Exudation of Inflammation.* A full analysis of these experiments was given in the No. of this Journal for April, 1872, p. 511.

We notice the paper *On the Science and Art of Healing Wounds*, by Dr. BENJAMIN W. RICHARDSON, rather out of respect for its distinguished author than for its novelty or intrinsic merit.

Dr. R., after commenting upon the great divergence of the practice that exists among surgeons of dressing wounds, says, that if the wounded surfaces be so brought together that the attraction of cohesion can come perfectly into effect, no spaces including air being left between the surfaces, the process of dressing will be as simple as it is effective. "This process," he continues, "consists, first, in removing all possible foreign matters, such as shreds and ends of ligatures or clots of blood, from the wound; secondly, in bringing the surfaces closely together; thirdly, in closing as neatly as possible with silk sutures; and fourthly, in applying over the lines of the suture, so as completely to close up the divided surface, an adhesive colloidal substance, which will produce no irritation, will effectually exclude the air, and will be elastic and styptic." The styptic colloid that Dr. Richardson prefers is a solution of tannic acid in xyloidin or collodion; xyloidin yielding the most elastic and, therefore, preferable compound. "Presuming," he says, "that all wounds fit for healing by the first intention were treated in this manner there would I believe, on the best experience, be an entire change in the results of treatment, a change that would turn over the majority of cures in favour of healing by the first intention. Although Dr. Richardson has reported the histories of two patients who were treated after his plan and who made good and rapid recoveries, in one case after removal of the foot by Chopart's operation, during which it was necessary to use the saw in separating the cuboid bone from the os calcis, and in the other after amputation of the breast for cancer, we cannot help

thinking that a larger experience at the bedside will force him to modify his views.

If the wound is of such a nature that it cannot possibly heal by first intention, the styptic colloid should be applied to the whole exposed surface, and upon this cotton-wool well saturated with the colloid should be laid.

We shall next notice a paper on *Oil of Turpentine as an Antidote against Poisoning by Phosphorus*, by H. KÖHLER, M.D., Professor of Therapeutics in the University of Halle, Germany. The results of numerous experiments have convinced Professor K. that oil of turpentine possesses antidotal powers of great value in the treatment of poisoning by phosphorus; but he has also discovered that the oil of turpentine, to be really useful, must contain oxygen. Hence the common commercial oil is to be preferred to a highly rectified one. The phosphorus, being oxidized by the oxygen, reacts with the turpentine and forms with it a turpentine camphor, which is innocuous. In regard to the mode of administration of the remedy, he says that it is best given inclosed in gelatine capsules, and that where this is possible, the patient should take one hundred parts of oil of turpentine for every one of phosphorus swallowed.

Dr. J. SHEPHERD FLETCHER relates a *Case of Empyema cured by five Operations for Paracentesis and Use of Draining Tube*. With remarks.—The patient in this case was a girl at 13, who had had, previously to March 19, 1871, remarkably good health. On that day symptoms of acute pleurisy presented themselves. On the 17th of April a small trocar was introduced between the fifth and sixth ribs, but not more than about three ounces of thick pus could be removed, the tube becoming blocked up with flakes of lymph. The subsequent operations were done on April 19, 22, and 25, and on May 5; about a quart of pus being withdrawn from the chest at each time. Immediately after the last operation the patient began to improve, but twice subsequently a discharge took place from the wound. At the time of reporting the case, Dr. Fletcher says, "it is impossible to discover from the physical signs which side has suffered."

*On Croup.* The Essay to which the Fothergillian Gold Medal of the Medical Society of London was awarded in 1872. By EDWARDS CRISP, M.D.

*On Croup and Diphtheria.* By ROBERT HUNTER SEMPLE, M.D.—Dr. Semple is also the author of a paper in the fourth volume, entitled *On Diphtheria, and the Diseases allied to it, or which may be mistaken for it*, in which he maintains, as he does in the paper contributed to this volume, the essential identity of diphtheria and pseudo-membranous croup. Dr. Crisp, on the other hand, in an essay in which an equal amount of research is shown, advocates the theory of the entire independence of the diseases, the one of the other. He believes that croup and diphtheria, as seen in England, are separate and distinct diseases, and although in some instances the line of demarcation is slight and ill-defined, in the great majority of examples the distinction is evident and well-marked. He supports the opinion by saying, that in the latter disease we have symptoms of blood poisoning, which are absent in the former, where death is produced simply as a result of a mechanical impediment to the respiration. In diphtheria we are apt to have patches of diphtheritic membrane near the mouth, nares, vulva, and anus, which are never seen in true croup. The author might have added, that the results of tracheotomy are different in the two diseases, and that the sequelæ of diphtheria are never observed after croup.

We infer from Dr. Semple's remarks that English physicians are many of them not acquainted with the simple form of laryngitis, commonly called in this country false croup.

*Tarasp.*—Dr. LEONARD W. SEDGWICK gives a very pleasant account of a visit to Tarasp, with a notice of its mineral waters and its climate, which is situated in the Valley of the Inn in the Upper Engadine, and whose alkaline waters have been found useful in the treatment of diseases of the stomach, in congestion of the liver, and in conditions in which there is a tendency on the part of the urine to deposit uric acid. It may also be prescribed in irritable states of the bronchial mucous membrane, in cutaneous eruptions, in gout or rheumatism, in serofulous enlargements of the external glands, and for uterine congestive conditions producing irregularities of menstruation.

*Cancer successfully treated by the Injection of Bromine.* By A. WYNN WILLIAMS, M.D.—The great objection to the use of caustic, as a substitute for the knife, in the removal of cancerous tumours, is that its absorption may give rise to serious results. The action of bromine, Dr. Williams thinks, is entirely local, “although there can be no doubt that on becoming gaseous it permeates the surrounding tissues beyond the point where it acts as a caustic. That it modifies the ulcerated surface of malignant tumours is beyond the shadow of a doubt. Our object then is to get this volatile semi-gaseous caustic applied to the base of the tumour—that is, to commence the destruction of the tumour at its junction with the healthy tissues—and the only means of doing this is by injection.” The solution of bromine, which Dr. Williams uses, is one composed of a drachm of bromine dissolved in three of alcohol, and of this he injects five to ten minims. In order to preserve the surrounding parts from injury they are covered with cotton wetted with a solution of carbonate of soda.

Three cases of cancer are reported which were treated by the injection of bromine, and in all a complete recovery is said to have taken place.

J. H. H.

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ART. XXIII.—*Transactions of American State Medical Societies.*

1. *Transactions of the Minnesota State Medical Society, Semi-Annual Session, June, 1871. Annual Session, February, 1872.* 8vo. pp. 120.
2. *Transactions of the Georgia Medical Association at the Twenty-third Annual Meeting, held April, 1872.* 8vo. pp. 134.
3. *Transactions of the State Medical Society of Michigan for the year 1872.* 8vo. pp. 119.
4. *Transactions of the Medical Society of New Jersey, at its One hundred and sixth Annual Meeting, held May, 1872.* 8vo. pp. 310.
5. *Transactions of the Sixth Annual Meeting of the Medical Association of the State of Missouri, held April, 1872.* 8vo. pp. 92.
6. *Transactions of the Nineteenth Annual Meeting of the Medical Society of the State of North Carolina, held May, 1872.* 8vo. pp. 71.
7. *Transactions of the Indiana State Medical Society at its Twenty-second Annual Session, held May, 1872.* 8vo. pp. 173.

1. THE volume of “*Transactions of the Minnesota State Medical Society*” comprises those of the semi-annual session of 1871, and of the annual session of 1872. At the semi-annual session an essay was read by Dr. B. MATTOCKS on “*Children—their Diseases and Treatment.*” The leading object of the essay is to correct the supposed error made by physicians in treating of the pathology and therapeutics of childhood as essentially different from the pathology and

therapeutics of adult life. In this Dr. M. has certainly undertaken a very unnecessary task. We are not aware of any well-informed physician of the present day who is guilty of the error referred to.

Dr. W. W. MAYO gives an account of a case of "Rectocele," in which various operations were resorted to without success, when, finally, one for its entire removal was adopted, and with every prospect of entire success. It is somewhat difficult to understand from the history given by Dr. M., the true character and seat of the tumor in question, or why its entire removal was not attempted in the first place.

A very interesting case is related by Dr. A. J. STONE, in which an obstinate and very painful *ulceration of the os uteri* was entirely healed by the transplantation over it of a portion of the mucous membrane taken from a healthy part of the cervix.

A somewhat unique case of "Ovarian Cyst," occurring in a child eight years old, is related by Dr. C. G. GOODRICH. After suffering much from abdominal intumescence and pain, attributed at first to excess in eating and deficient exercise, the presence of an abdominal cyst was at length detected, under the irritation of which the patient finally sank.

The session of 1872 was opened by an Address from the President, Dr. FRANKLIN STAPLES, having for its subject "Professional Ethics."

The subject of the "Annual Essay," by Dr. L. P. DODGE, was "Chlorate of Potassa"—its therapeutic value, and the morbid states and conditions in which its curative powers are most strikingly evinced.

The report of the Committee on "Climatology and Epidemics" for 1871, contains a mass of interesting facts in respect to the medical topography of each county of the State. The well-known fevers of miasmatic origin, particularly intermittents, prevailed to an increased extent throughout the paludal districts, while in other districts a decrease has been noticed in the prevalence of enteric fever and a much less spread of fever of the entero-malarial form. Diseases of the entire respiratory tract appear to have been of frequent occurrence in most parts of the State, assuming often a very chronic form. Pneumonia does not appear to have prevailed to any great extent nor to have proved very fatal.

The climate of Minnesota does not appear favourable to the development of pulmonary tuberculosis. Patients predisposed or labouring under it in its early stage, are said to be very decidedly benefited by removing to the State.

The occurrence of cerebro-spinal meningitis, diphtheria, scarlet fever, measles, smallpox, rheumatism, dysentery, cholera infantum, and erysipelas, generally mild in character and limited in extent, is noticed in most portions of the State.

Erysipelas, however, it is proper to remark, assumed in a few localities a decidedly epidemic character. Dr. HAND states that "in St. Paul, Ramsey County, the disease prevailed epidemically during November and December. During these same months there prevailed an unusual amount of puerperal fever."

A case of *Syphilis accompanied by Capillary Bronchitis and Lobular Solidifications of Lung Tissue* is reported by Dr. H. C. HAND. The case reported in this paper is an example of the coincidence of a severe syphilitic taint with an inflammatory condition of the lungs, and the close correspondence of the solidified lung tissue to the sea-green marbled appearance in the chronic pneumonia occurring in syphilitic subjects, of which some eight cases are reported in the work of Lancereaux on Syphilis. We have ourselves witnessed often the same positive and prompt control exercised by

hyoscyamus (extract or tincture) over the suffocative phenomena of capillary bronchitis referred to by Dr. H. in non-syphilitic patients.

2. *Transactions of the Georgia Medical Association.*—The Twenty-third Annual Session, held on the 10th and the 12th days of April, 1872, was opened by an address from the President, Dr. G. M. McDowell, presenting a plain but opportune sketch of the leading objects of the Association, the good it has already accomplished, and the important work expected of it in the future.

An account is given by Dr. C. B. NOTTINGHAM of an interesting *Case of "Ovariotomy"* in a married female twenty-nine years of age, who had never had a child. "The tumour was of a kind rarely met with. Inclosed in a tegumentary envelope, it was composed almost entirely of bone, with here and there a very slight intermixture of fibrous substance. Its osseous nature was so decided that a strong knife could not be made to penetrate it at any point. Its weight when drained was one pound and three-quarters. Neither teeth, hair, nor spongoid structure was observed."

A very concise report from the Committee on "Surgery" was made by Dr. R. BATTY, who simply states that in his own practice there had occurred a case of ovariotomy-recovery; one of perineal cystotomy for relief of chronic cystitis, and of complete false ankylosis of hip-joint, cured by forcible rupture of adhesions, without any further details. In separate articles (vi., vii., viii.), however, the history of these cases is given in full.

Three cases of "Gunshot Wounds of the Brain," showing the amount of injury that organ may undergo without necessarily precluding the possibility of the patient's recovery, are related by Dr. C. TERRY.

By the same gentleman a curious case of "Superfætation" is reported. Two children were born during the same labour, one shortly after the other, having separate placentæ. The first born weighed scant four pounds, the second full eight. The first lived six days, sleeping nearly all the time, and presenting every characteristic of a premature-born babe; the other when two months old was well conditioned and a promising child.

*Bromide of Potassium* is extolled by Dr. K. P. MOORE as a valuable "nervine or brain sedative," in the convulsive affections of children as well as of adults. "Whenever, also," Dr. M. remarks, "there is a tendency to convulsions, from almost any cause, whether from reflex nervous action or from inflammatory fever, the bromide is not contraindicated."

Dr. F. A. STANFORD reports two cases of *Placenta Prævia* successfully treated by rupture of membranes, evacuation of liquor amnii, and separation of placenta from its uterine connections.

The leading object of an article on *Puerile Incontinence of Urine*, also by Dr. STANFORD, is to recommend the introduction of a bougie, which in four cases—boys from four to nine years of age—was followed by complete success. He had had no opportunity of testing the bougie in the female, but can see no reason why it should not be equally efficacious.

Dr. JOHN STAINBECK WILSON attempts to prove that *Parturition is not necessarily a painful process*. If we cannot fully agree with him in this conclusion, we can in respect to his suggestions as to the hygienic treatment of pregnant women as a certain means of mitigating the pains of labour.

The Annual Oration was delivered by Dr. A. W. GRIGGS. Its main theme is the correlation of the external forces of nature and those of the living organism of man, and the influences exercised by the former upon the latter in the maintenance or disturbance of their regular, healthy action.

Dr. V. H. TALIAFERRO calls attention to the *Uterine Medicated Cloth Tents*, by which, according to his experience, the uterine cavity can be "more readily and effectually medicated than by any other known method."

Dr. W. F. WESTMORELAND treats of the *Muriated Tincture of Iron* as a *Styptic*, and adduces cases illustrating some of its advantages. It is a long paper, not readily admitting of a satisfactory analysis. It contains, however, but little that is new.

3. The *Sixth Annual Session of the Michigan State Medical Society* was opened by an address from the President, Dr. H. O. HITCHCOCK, on *Modern Medicine*. It presents a kind of running commentary on the history of medicine and the gradual steps by which it has advanced to its present status.

Dr. W. H. DE CAMP treats of the *Sickness and Vomiting of Pregnancy*, and, among the different remedies proposed for the relief of this often highly distressing accompaniment of pregnancy, he extols *arsenic*. In about nine-tenths of the cases in which he has employed it, a speedy cure or relief was obtained. The dose given never exceeded one-thirtieth of a grain. In many instances a single drop of Fowler's solution was equally efficacious.

The report of the Committee on *Vital Statistics* comprises a series of judicious suggestions in respect to the collection and recording of materials towards a reliable and useful exposition of the movements taking place amid any given community in all embraced in the several branches of vital statistics.

Dr. Parmenter advocates a demand being made to the legislature for the enactment of laws requiring of medical practitioners an adequate education, and for securing to them their legitimate rights. This shows but little knowledge of the world; all experience in this country proving that the profession must take care of itself, and that any legislation that might be obtained would result in the injury of scientific medicine and the benefit of pretenders. One might think that the action of the legislature in Dr. P.'s own State in regard to the University, might serve as a caution to him in this matter.

The history of an *Amputation at the Hip-joint*, read by Professor Y. A. McGRAW, is very interesting and instructive.

The closing report is by Professor J. F. NOYES, on the use of the *Ophthalmoscope*, what it has accomplished, and its relation to general medicine. The report is a highly instructive one, but we cannot be spared the space required for an extended notice of it.

4. The 106th annual session of the *State Medical Society of New Jersey*, held May, 1872, was opened by an address from the President, CHAS. HASBROUCK, M.D., the leading subject of which was "The popularization of Medical Knowledge as a means of correcting the tendency of the public mind to quackery in medicine." It contains some good suggestions.

In the reports from the district societies is to be found a very full exposition of the sanitary condition of the several portions of the State, a brief analysis of which we should be pleased to present to our readers could it be done without encroaching on space devoted to other departments of the Journal.

In the report from Bergen County, Dr. J. M. SIMPSON relates a highly interesting case of "*Dislocation of Vertebrae*," in a male, 21 years old, caused by a fall, October 4, 1872, of some 25 or 30 feet, from a chestnut tree, striking the ground with his shoulder and back. When picked up he was insensible. On recovering consciousness, he complained of severe pain in the back, shooting round into the hypogastrium and left groin. About two hours after the accident, Dr. S. found him lying partially on his right side, with knees drawn up and

almost immovable. His back was slightly bruised and scratched, with, apparently, indications of displacement forwards of the vertebræ at the lumbo-dorsal junction; sensation in lower extremities diminished, but not obliterated; intense pain of back and abdomen. Cold applications to the patient's back were ordered, and to keep him as quiet as possible; 40 drops liq. opii comp. every two hours during the night. Next morning Dr. Hasbrouck saw the patient in consultation. He recognized the partial dislocation of vertebræ, but doubted the safety of any attempt being made for its reduction. He suggested, in adding to the treatment, 5 grs. potass. iodid., repeated every four hours.

The night succeeding the injury urine was passed. After that for the next ten days, the bladder had to be emptied twice daily by the catheter, when its voluntary voidance, with some straining, recurred. He suffered from costiveness, which was unrelieved by enemata or by purgatives *per orem*, until by the introduction of a finger into the rectum, a hardened mass of feces there accumulated was broken up. After twelve days the bowels became regular. All the symptoms began now regularly to improve, excepting the deformity of the back, which increased much in extent. In about three weeks from the time of the accident, the patient began to sit up in bed, and four or five weeks later, to walk around the house, with the aid of a cane. During the fall and early winter his back continued quite weak. In January, 1872, he had a brace fitted to him for the support of his back. March 26th, 1872, commenced working at his trade, that of a mason. With the artificial support furnished by his brace, he feels as well, he says, as he did before the accident.

In the same, and some of the other reports, are given the histories of other cases; medical, surgical, and obstetrical, all more or less interesting. There are, also, short biographical notices of recently deceased physicians of the State.

5. *The Transactions of the Sixth Annual Meeting of the Medical Association of the State of Missouri*, held April, 1872, comprise a series of papers highly creditable to their respective authors. The first of these is a report on "*Psychological Medicine*," by Dr. C. H. HUGHES. In considering the general subject of insanity, and the duty of physicians in the further investigation of its pathology, Dr. H. points out briefly the importance of its moral and hygienic treatment, concluding with a sketch of what should be the insane hospital of the future.

Dr. S. S. TODD, in a paper on "*Tranquillization as an Element of Cure*," maintains that the special effects of tranquillizing agents may be divided into two groups. 1. Relief of pain, spasm, tremour, convulsion, induction of quiet, healthy sleep, restoration of lost nerve-force, and restoration of equilibrium of circulation. 2. Restraining or repressing excessive heart action.

The paper throughout is a sensible and truly practical one.

Dr. H. Z. GILL read a paper on "*Affections of the Eye from Neuralgia of the fifth pair of Nerves, the result of Disease of the Dental Nerves*." This subject has only of late years attracted the attention it deserves. The paper is an interesting one, but is far from giving a full *r  sum  * of the subject, and adds nothing to our knowledge of it.

The volume closes with "*A Plea for the Antiphlogistic Treatment of Disease*," by Dr. E. MONTGOMERY, in which the author presents some sensible therapeutic views. As a general aphorism, we can fully indorse the statement of Dr. M., that "*antiphlogistics are invaluable remedies when judiciously employed in the proper stages of appropriate cases of disease*."

6. In the Appendix A to "*The Transactions of the Nineteenth Annual Meeting of the Medical Society of the State of North Carolina*, held May, 1872, is reported the address of Dr. G. A. Foote.

In the remaining appendices there are reported: 1st. A case of "*Transfusion of blood from the carotid of a lamb into the cephalic vein of a man*," by Dr. J. F. KING, which is, in many respects, interesting. This case affords, in the estimation of the author, two important results: *First*, The effect of common whiskey in the treatment of tetanus. *Second*, The blood of an animal, though its globules differ in character, when transfused into the vessels of the human subject, will restore and sustain sinking vitality; and hence the operation is justifiable as a last resort in cases of extreme debility from disease or loss of blood.

Though the subject of the operation reported by Dr. K. was a most unpromising one for any success to be hoped from the operation, nevertheless immediately, and for some days after the transfusion, a very striking improvement in his condition ensued. At the end of two weeks, however, he died.

*Second.* Three cases of *uterine polypi* successfully removed, are related by Dr. H. T. BAHNSON; also, the history of some cases in which forcible dilatation of the female urethra was resorted to for the extraction of stone from the bladder.

*Third.* An account by Dr. C. F. DUFFY, of a case of "*Gestation and Labour, with Complications*." The latter consisted in regular menstruation during the first four months of gestation, with probably retained blood from periodical hemorrhage for two or three months later; dropsy of amnion; tense, resistant membranes; adherent placenta; tumour, ovoid in shape, over three inches in shortest diameter, and weighing, when perfectly dry, 12 ounces. It consisted of coagula of blood, interspersed with small masses of fibrin, invested with a membrane identical with the decidua; having a pedicle, seemingly a prolongation of the latter, twisted into the form of a cord, about a fourth of an inch in diameter.

*Fourth.* The description, by Drs. KIRBY and MILLER, of a case of "*Extra Uterine Pregnancy*." Abdominal foetus of probably 4½ months, in a state of partial decomposition, was removed by gastrotomy. Entire recovery of patient.

A case is related by Dr. E. B. HAYWOOD, showing that in total necrosis of the diaphysis of tibia, periosteum is not necessary for osteo-genesis.

*A Case of Membranous Croup* is related by Dr. J. ROYSTER, in which recovery took place after the operation of tracheotomy.

Dr. F. HAYWOOD records a case of *Amputation of the upper third of the right thigh for Gelatinous Arthritis*; with favourable result.

A case of *Craniotomy* in impeded labour performed under adverse circumstances, is reported by Dr. V. N. SEWELL. In itself, the case presents nothing calling for comment.

Decision of Supreme Court of North Carolina is given, affirming the right of a physician to extra compensation when summoned as a medical expert.

7. Transactions of the *Indiana State Medical Society*.—The Annual Meeting was opened by an address from the President, Dr. H. P. AYRES.

Following it is the history, by Dr. S. E. MUNFORD, of case of *Hydrocele*, with cartilaginous thickening of the tunica vaginalis.

The paper on the *Pathology of Malignant and Semi-Malignant Growths*, by Dr. R. E. HAUGHTON, is worthy of a careful study. In it he discusses the following questions: 1st. The law producing departures from the homologous development, and giving rise to heterologous growth. 2. The conditions governing the development of *physiological* tissues. 3. The conditions governing the

development of *pathological* tissues, or neoplasms. 4. Classification of morbid growths. 5. Histology, pathology, and diagnosis.

A history is presented by Dr. L. J. WOOLEN, of an *Epidemic of Parotitis*, which prevailed to a very great extent in Switzerland County, Ind. The disease in most of the cases presented a character of much greater severity than under ordinary circumstances, and displayed in its symptoms and course, certain anomalies. Many cases were attended with soreness of all the voluntary muscles, causing the slightest touch of the body to be shrunk from.

Dr. J. THOMPSON, in his paper on *Anomalies in Refraction and Accommodation of Vision*, does not profess to throw any new light upon the subject, but simply to render the subject more intelligible to the working members of the profession.

Dr. T. C. VAN NUYS presents the results of *Researches* made by him in *Arsenical Poisoning*. They will be received as a valuable contribution to toxicology.

The paper on *Medico-Legal Science*, by Dr. T. M. STEVENS, is marked throughout by good sense, and inculcates correct principles as fully as the limited space he has allowed himself will permit.

The paper on *Diseases of the Eye and Ear*, by Dr. C. E. WRIGHT, contains nothing very satisfactory on the diseases of the organs of sight and hearing.

Dr. N. FIELD presents a very sensible paper on *Thoracentesis* or paracentesis of the plural cavity for the discharge of accumulations of pus or serum liable to occur in cases of pleuro-pneumonia, pleurisy, etc., of the value of which operation there is at present too large an amount of evidence to allow any doubt to be entertained of its propriety. We have ourselves seen patients who were emaciated, worn out with hectic fever, night-sweat, and unable to assume the horizontal position without a sense of impending suffocation, promptly relieved and finally restored to entire health after the removal by an operation of accumulations of serum or pus from the chest. Dr. F. maintains that the fear which some have expressed that injury will result from the introduction of air through the opening, into the cavity of the pleura, is altogether groundless.

The next paper is on *Lithotomy*, with the report of a case, by Dr. R. E. HAUGHTON. In this case the stone was large, and difficulties were encountered not often presented. Though these were overcome, the patient did not finally recover—not because of any failure in the operation, but by reason of previous exhaustion and suffering.

D. F. C.

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ART. XXIV.—*Transactions of the Medical Society of the State of New York*, for the year 1871. 8vo. pp. iv., 490. Albany, 1872.

THE present volume of Transactions contains, in addition to the minutes of the proceedings of the society at its sixty-fifth annual meeting, a number of papers relating to medical subjects, with several necrological notices, and the customary lists of officers, honorary and permanent members, etc.

With regard to the minutes of the annual meeting, which are printed as Art. I., we cannot help asking ourselves whether the cause of science would not be as well, and that of good feeling and professional amity better promoted, by the omission from the published record of the acrimonious and personal debates, charges, and countercharges, leading to no action, which are here spread out in full detail, to the credit, according to our way of thinking, neither of the

society as a body, nor of the individuals who took part in the controversies referred to.

The *Anniversary Address*, by S. OAKLEY VANDER POEL, A.M., M.D., President of the society, is an earnest plea for the importance of the study of pathological anatomy.

*Laceration of the Perineum and Bladder, etc.*; by GEORGE BURR, M.D., of Binghamton, N. Y., gives an interesting account of a case of impalement; the patient was a man aged thirty-three, who fell over a log, a branch lacerating his perineum and entering the bladder, in which organ two fragments became detached and formed the nuclei of stones which were removed eight months subsequently.

*Two Cases of Luxation of the Elbow, backwards; one of fourteen weeks' and the other of sixteen weeks' standing, both successfully reduced by the aid of subcutaneous section of the triceps tendon, and recovery with nearly perfect motion*, are described by LEWIS A. SAYRE, M.D., Professor of Orthopedic and Clinical Surgery, Bellevue Hospital Medical College.

In the second case Prof. Sayre diagnosticated a fracture of the coronoid process of the ulna, the detached fragment being adherent to the anterior portion of the condyle of the humerus, and in his remarks upon the subject refers to two specimens, one belonging to Dr. Moseley and one to Dr. Darling, both of which exhibit the lesion in question.

*On Puerperal Eclampsia*; by HARVEY JEWETT, M.D., Canandaigua, N. Y.—No points are presented in this paper calling for special comment; the author's experience has led him to abandon bleeding in the treatment of puerperal convulsions, and to rely mainly upon free purging, and upon the administration of chloroform and ether.

WILLIAM H. CRAIG, M.D., in his address, as president, to the medical society of the County of Albany, calls attention to some of the wrong tendencies of modern medicine, and urges that every effort should be made to improve medicine as an *art* as well as in its *scientific* character.

In an article on *Trismus Nascentium*, JAMES S. BAILEY, M.D., of Albany, N. Y., has manifested a great deal of industry in collecting the views of different writers upon the disease in question, but does not appear to have added much from his own personal experience.

*The Constitution of Man* is the title of a discourse delivered before the medical society of the County of Oneida, N. Y., by CHARLES B. COVENTRY, M.D., Emeritus Professor of Physiology and Medical Jurisprudence in the University of Buffalo, N. Y.

The longest of the scientific papers is *On the Cause, Prevention, and Cure of Tuberculous Phthisis; being an Essay for the Hiram Corliss Prize*; by GHISLANI DURANT, M.D., of New York. The first portion of this essay gives an interesting and, so far as we are competent to judge, a fair and accurate account of the different views which have from time to time prevailed concerning the nature of tubercle and its relations to pulmonary phthisis, including suitable reference to the views of Villemin, Niemeyer, and other recent writers upon the subject; and the latter portion advocates the employment of arsenic in the treatment of consumption, the author declaring that in his hands the results of arsenical medication "have been most satisfactory," and that "without discarding the various medicines ordinarily employed to rebuild the tuberculous organism," he has "arrived at the conclusion that arsenic should be placed in the front rank."

D. W. JONES, M.D., of Franklin County, N. Y., in an article on the use of *Veratrum Viride*, particularly recommends this drug in the treatment of inflammations, but deprecates it in that of the so-called zymotic diseases, and especially of scarlet fever.

An article on *Anæsthetics* is contributed by EDWARD R. SQUIBB, M.D., of Brooklyn. This paper, which is one of much interest, has been widely read in the pages of the *New York Medical Journal*, in which it appeared in April, 1871, as well as in pamphlet form, and most American surgeons are therefore probably familiar with the author's views. We quote as a matter of interest, in connection with the recent revival of etherization in Great Britain, Dr. Squibb's estimate as to the future of the anæsthetics now in most common use:—

"At one time," he says, "chloroform was almost as exclusively used in this country as in Great Britain. Now, however, it is probably used in more than half the cases, or at least as often as all other anæsthetics together. Various mixtures of chloroform and alcohol, and chloroform and ether, may be used in a twentieth part of the total cases, and nitrous oxide in another twentieth, while ether alone may be used in four-tenths of the total cases. These proportions should be, and probably will ultimately be, so far reversed that ether will be used in six-tenths of the cases, nitrous oxide in three-tenths, and chloroform in one-tenth of the cases to which these agents are applied."

*On the Detection of Pulmonary Elastic Tissue in the Sputum of Phthisis*; by JOS. G. RICHARDSON, M.D., Microscopist to the Pennsylvania Hospital.—The ingenious method of aiding the diagnosis in obscure cases of phthisis, by noting, in microscopic examination of the sputa, the peculiar square or transverse fracture of the elastic fibres of the air vesicles, was, we believe, first described by the author in his *Handbook of Medical Microscopy*, published in 1870. As an illustration of the practical value of his suggestion, he quotes a case reported by Dr. Hutchinson to the Pathological Society of this city, and published in the number of this Journal for January, 1871, p. 153.

*On one of the Modes of Death from Chloroform*; by ANDREW H. SMITH, M.D., of New York.—The mode of death here referred to is that due to the local anæsthetic effect of chloroform upon the nerves of the pulmonary mucous membrane, abolishing the sense of the necessity of breathing, and thus leading to apnea.

*Absorption of Bone*; by ISAAC N. MEAD, M.D., Amenia.—This case is very insufficiently reported, and no account of the microscopic appearances is given; but, so far as we can judge from the meagre history furnished, the case appears to have been one of myeloid tumour developed in a femur after fracture.

*Operation for the Radical Cure of Inguinal Hernia*; by C. C. F. GAY, M.D., Surgeon to the Buffalo General Hospital, etc.—Dr. Gay's operation is a combination of that of Chisolm, of Maryland (which consists in approximating by means of a subcutaneous silver wire suture the sides of the canal through which the hernia descends), and that of Armsby, of Albany, which is itself one of the numerous modifications of Gerdy's procedure, and which consists essentially in invaginating the hernial sac and exciting local inflammation by means of a seton. Dr. Gay reports one case, in which no recurrence of the hernia was observed ten months after the operation.

*A Case of Ligation of the Left Subclavian Artery for Axillary Aneurism*; by C. C. F. GAY, M.D.—This case has already been published in the number of this Journal for October, 1871, page 392.

*Spinal Irritation*; by SAMUEL PETERS, M.D., Cohoes.—The author maintains that such a disease as spinal irritation actually exists, and recommends faradization in its treatment.

*Insanity, its Dependence on Physical Disease*; by JOHN P. GRAY, M.D., Superintendent of the New York State Lunatic Asylum, Utica.—This seems to us one of the most interesting papers in the whole volume, and we regret that our limited space will permit of our quoting only the paragraph in which the author sums up what is at present known, and what is yet to be inquired after, concerning the physical origin of insanity.

“It may be safely assumed,” says Dr. Gray, “that experience has given us some fundamental starting points:—

“1st. Disease of any part of the organism may be the pathologic cause of insanity.

“2d. In such cases insanity is not manifested until the brain is actually involved.

“3d. Disease of the brain or its membranes may be the primary exciting cause of insanity, and other parts of the organism subsequently become affected.

“4th. Insanity more frequently has its primary origin in pathologic states outside the brain than in primary diseases of the brain.

“5th. There are physical symptoms and signs of brain diseases, which experience has enabled us to recognize as pathognostic of certain brain-changes; by knowledge of which we are able to anticipate and understand the progress of cerebral diseases.”

The questions to be answered by future observation are:—

“1st. Whether there are specific changes in the brain in insanity, and if so, whether there are any means of ascertaining positively or proximately what those changes are?

“2d. Are there physical signs and symptoms indicating the presence and progress of such changes, which may be detected and relied upon, and what these are?

“3d. Are there *post-mortem* appearances in the brains of those who die insane, which would justify the assumption that morbid cerebral changes were the potential and only ultimate causation of insanity?

“4th. Are there any sound reasons for an assumption that the mind can overthrow itself, independent of cerebral changes?

“5th. Do the secretions of the skin, kidneys, etc., throw any light upon the morbid conditions of the brain in insanity, either regarding its pathologic state, its nutrition, or action?”

*Fracture of one of the Bones of the Spinal Column, accompanied with Dislocation*; by P. O. WILLIAMS, M.D.—The patient was a man aged 29 years, who was injured by being crushed between the beam over a barn-door and a loaded wagon, on the top of which he was riding. Reduction of the fracture, which was situated in the eleventh dorsal vertebra, and which was accompanied with considerable displacement, was readily effected by making extension and counter-extension, with manipulation; and suitable splints were then applied, and kept on for eight months. Convalescence was slow but uninterrupted, and the patient eventually made an excellent recovery—feeling, indeed, so well after eighteen months as to venture upon the experiment of matrimony.

*Inoculation with Tuberculous Matter*; by L. BARTON, M.D.—The author cut himself while making a *post-mortem* examination in a case of phthisis, and got a sore finger which troubled him for several years, and which he believes, on what seem to us to be very insufficient grounds, to have been inoculated with tubercle at the time of the injury.

*A New Method of Arresting Surgical Hemorrhage by the Artery Constrictor*,

*designed for the Instantaneous Hermetic Closure of Arteries, without the Use of Ligature or Other Foreign Substance to be Left in the Wound. The Merit H. Cash Prize Essay;* by S. FLEET SPEIR, M.D., Surgeon to the Brooklyn City Hospital, etc.—An abstract of Dr. Speir's paper was published in the number of this Journal for July, 1871, page 297. We have, as yet, had no opportunity of using the "artery constrictor" in practice, but should be disposed to employ it in preference to any of the *presse-artères*, or other means of temporarily occluding vessels, which have been proposed, in any case in which it was necessary to secure an artery in its continuity, and in which a ligature was not considered applicable.

*The Statistical Report of Four Hundred and Ninety-four Cases of Diseases of the Ear;* by D. B. ST. JOHN ROOSA, M.D., Clinical Professor of the Diseases of the Eye and Ear in the University of New York, etc., was published in full in the number of this Journal for April, 1871, pp. 386-392.

*Vertebrated Probe and Catheter;* by LEWIS A. SAYRE, M.D., Professor of Orthopedic and Clinical Surgery, Bellevue Hospital Medical College, New York.—This probe appears to be modelled after the well-known *Vertebrated Prostatic Catheter*, of Dr. T. H. Squire, of Elmira, whose description of his instrument will be found in the number of this Journal for October, 1871, pp. 393-399.

*A Contribution to the Surgery of Divergent Squint;* by C. R. AGNEW, M.D., New York.—In this brief but valuable paper, Dr. Agnew gives an account of an ingenious method of shortening the rectus internus, in cases of divergent squint:—

"The method . . . is one in which the internus is detached from its sclerotic insertion, drawn forward, shortened, and made to adhere again to the sclerotic, without attempting to lift and advance the overlying conjunctiva and capsule of Tenon. The patient having been profoundly etherized, and the eye to be operated upon held open by means of a spring speculum, an incision is made from the nasal end of the horizontal meridian of the cornea, back through the semilunar fold to the caruncle. This incision is best made with scissors, and should be carried down through the conjunctiva and capsule of Tenon upon the internus midway between its borders. The externus of the same eye should now be divided, access being made to its insertion through a conjunctiva wound tangent [Qu. secant?] to the cornea . . . . This can easily be done without cutting off in any degree the nutrition of the cornea, as is the case where the wound is made parallel to the corneal border. The next step is to get control of the internus so that it can be easily handled. This is accomplished, not by forceps, but by using a strabismus hook . . . . The free end of the hook, drilled with an eye and armed with a waxed ligature, is made to pass as one would pass an ordinary hook beneath the tendon, going so far back as to secure any adventitious bands. As the hook is withdrawn, the ligature is left in place, and the tendon, at its sclerotic insertion, firmly tied. With scissors, the tendon is then detached from the sclerotic, and drawn out of the wound . . . . Two sutures for the advancement of the muscle are then placed . . . . by curved needles, handled by some convenient needle-holder, like that of Prof. Sands. The sutures, well waxed, should transfix the muscle at as great a distance from the end of the tendon as the degree of divergence would seem to require. It is difficult to make an inflexible rule for this, but we have commonly found that the distance should be about one-fourth greater than the linear measurement of the divergence, except in cases where said divergence exceeds four lines, in which event the needles should transfix the muscle as far back as the caruncle will allow. The sutures having been placed in the muscle, the next step is to carry them beyond the conjunctiva, and, if possible, beneath the capsule of Tenon, and out above and below the cornea at the termini of its vertical meridian. . . . It now remains to

cut off the end of the tendon, as held in the ligature, leaving a line or two of muscular tissue to prevent the sutures from tearing out, and to tie first the upper suture, and then the lower one with such manipulations as would serve to spread out the advanced tendon beneath the corneal end of the conjunctival wound, and over that portion of the sclerotic to which it is hoped it will adhere. The eye should be strongly and accurately adducted during these manipulations, by catching the scleral remains of the cut tendon of the external rectus in forceps, and so turning the cornea, without tilting its horizontal meridian, well over into the internal canthus.”

*Labio-glosso-laryngeal Paralysis*; by E. R. HEN, M.D.—This short paper, which was published in the number of the *American Journal of Insanity*, for October, 1871, gives the clinical history of a case of the disease named, with a record of the *post-mortem* appearances, and of the results of microscopic examination of sections of the medulla oblongata and spinal cord.

“There was [in the medulla] a decided hypertrophy, or overgrowth of the connective tissue, which appeared to have encroached upon, and to some extent replaced the several groups of ganglionic cells which form the nuclei of implantation for the facial and hypoglossal nerves. The individual cells comprising these groups were separated from one another, and in many instances had lost their stellate appearance, their radiating processes having been destroyed so that each cell remained isolated and disconnected from its neighbors. These cells had also undergone a degenerative process, which in many cases rendered them simply a collection of fine granules, and a deposit of brownish yellow pigment had taken place to such an extent as to give the cells an appearance almost precisely similar to those which are normally found in the locus niger of Soemmering; they were fewer in number than usual and diminutive in size.

“Sections of the cord made in the cervical, dorsal, and lumbar regions showed a sclerosis with increase of connective tissue in the anterior and lateral columns, which was most marked in the left anterior and right lateral columns. The multipolar ganglionic cells, situated in the anterior cornua of gray matter, were fewer in number than usual, and many of them appeared granular and very much pigmented.”

*Prolapsus Uteri. Its chief causes and treatment*; by THOMAS ADDIS EMMET, M.D., Surgeon-in-chief of the Woman’s Hospital of the State of New York.—This paper has already been published in the *New York Medical Record*, and in the *Kansas City Medical Journal*, so that Dr. Emmet’s views may be presumed to be sufficiently familiar to American surgeons, to render any detailed account of them in these pages unnecessary. Perhaps the most interesting part of Dr. Emmet’s paper is that in which he describes the operations to which he is in the habit of resorting, in cases of Procidentia Uteri and Rectocele.

*On Urethrocele, Catarrh, and Ulceration of the Bladder in Females*; by NATHAN BOZEMAN, M.D., New York.—The term *Urethrocele* is applied by Dr. Bozeman to a condition (which appears to have been first described by Sir C. M. Clarke), and which, originating from various causes, consists of a prolapse of the urethro-vaginal septum, forming a prominent tumor between the nymphæ and labia majora, and constituting a pouch in which the urine accumulates. The treatment recommended is to tap the urethra through the vagina at its most dependent point, on the same principle upon which cystotomy has been performed in both male and female, in cases of vesical catarrh.

*Congenital Hypertrophy of the Tongue*; by WILLIAM VOSBURGH, M.D.—The patient was a girl, 18 years of age, and the treatment consisted in excising a large V-shaped piece from the overgrown organ, the operation having been performed while the patient was under the influence of chloroform, and the re-

sult of the case having been perfectly satisfactory. Photographs exhibiting the appearance of the patient before and after treatment, are referred to as having been exhibited to the Society, but are not reproduced in the "Transactions."

The remaining articles in the volume are, *Biographical Sketches* of JAMES HADLEY, M.D., by JAMES P. WHITE, M.D.; of DR. MINTURN POST, by G. S. WINSTON, M.D., and of THOMAS COCK, M.D., by GURDON BUCK, M.D.; *Memoirs* of PHINEAS H. BURDICK, M.D., by HENRY C. HENDRICK, M.D., and of ALEXANDER THOMPSON, M.D., by FREDERICK HYDE, M.D.; and lists of honorary and permanent members, presidents of the society, etc.

J. A., JR.

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ART. XXV.—*De la Thrombose Cardiaque dans la Diphthérie*, par BEVERLEY ROBINSON, Docteur en Médecine de la Faculté de Paris. Interne des Hôpitaux de Paris.

*On Cardiac Thrombosis in Diphtheria.* By BEVERLEY ROBINSON, M.D., (Paris). Interne of Paris Hospitals.

In the last two numbers of this Journal are published two articles on the subject of thrombosis, or the clotting of the blood during life, taking place in the heart, veins, and arteries, in various diseases and disturbed conditions of the body. In his preliminary remarks, the writer, who is well qualified both by extensive reading and from his own observations, to give such an opinion, says that

"The subject is one which possesses very great importance for the practising physician as well as the medical philosopher; because it embraces almost all the cases which used to be described under the head of phlebitis, together with a very large share of the accidents which occur to women after childbirth, and a considerable proportion of the cases in general in which death suddenly occurs; besides it is by producing thrombosis of the heart and pulmonary artery that chronic diseases, such as tuberculosis, carcinoma, marasmus, finally occasion death, in very many instances. It is also probable that both thrombosis and embolism play a much more important part in the history of disease than is generally supposed, and that they are destined to receive much more attention from the pathologist in the near future than is generally believed."

Just thirteen years ago, in 1860, in the British Medical Journal were published some most interesting lectures by Benjamin W. Richardson, entitled "Vacation Lectures on Fibrinous Deposition in the Heart." In these lectures it was the author's endeavour, and he confined himself purely to what is observed at the bed-side, and at the post-mortem table, to point out "that in the vast majority of acute inflammatory affections, the fatal result is due not so often to the local lesion which we in common language are accustomed to call the inflammation, but to a deposit in the heart of a part of the fibrinous constituents of the blood." In the Philadelphia *Medical Examiner*, for March, 1849, Dr. Charles D. Meigs first made public his views, "which he had long entertained," on the sudden coagulation of the blood in the heart. He attributes its occurrence to a temporary stasis, or near approximation to stasis, during a state of fainting in an exhausted patient. The theory of *embolism* was first announced to the scientific world, in 1845, when Virchow affirmed that the obstruction of the pulmonary artery, hitherto considered to be a cadaveric phenomenon, was often owing to a fibrinous clot formed in a distant part of the

body, in the veins of the limbs, for example, and carried to the pulmonary artery and its branches by the flow of the blood. The name of *embolism* was given by the discoverer to this plugging of the bloodvessels, in 1853, or some eight years afterwards, in his *Hand-book of Special Pathology and Therapeutics*. These teachings in regard to the coagulation of the blood in the living body, the transportation of blood-clots, and the stoppage thereby of the nourishing vessels in different parts and organs, at first heard, but a few years since, with ridicule, have now become, through the force of demonstration, universally received. What Dr. Lidell says to be probable, we believe to be thoroughly proven, namely, "that both thrombosis and embolism play a much more important part in the history of disease than is generally supposed, and that they are destined to receive much more attention from the pathologist in the near future than is generally believed."

It is interesting, and it is also instructive, as affording a good instance of how the force of a recognized authority will prevent any contrary opinions being heard, to see how thrombosis and embolism were taught years ago, and so little were these doctrines listened to, that they were completely forgotten. In the *Philosophical Transactions*, for 1684, is "An Account of a Polypus found in the Heart of a Person that died Epileptical, at Oxon," by W. Gould, M.B. The author endeavours to refute the opinion that polypous concretions, such as those here described, never exist during life, but are produced by coagulation immediately after death. He says that "fragments may be detached from these concretions, be propelled through the arteries, and finally obliterate a small vessel, so as to prevent the corresponding parts of the body from being nourished." This case is reported in the abridgments by John Lowthorp, vol. iii. p. 70. In the *Sepulcretum* of Bonetus (Geneva, 1700), it is worth while to look over *Observatio 1, Liber primus, Sectio II*, entitled, *Apoplexia aborta ab occlusione vasorum quæ spiritum vitalem ad cerebrum vehunt, scilicet concursus omnium crassa meningis sinum, Torcular dicto*. Van Swieten, in his *Commentaries upon the Aphorisms of Boerhaave* (Leyden, 1742), in the one hundred and twentieth *Quæ nata in corpore vivo impedit transitum fluxura materiæ, etc.* —says, among other things, "si polyposæ massæ concretæ circa magnum sinum dextri cordis pellantur in arteriam pulmonalem, actum est de vita: si venæ portarum ramuli in hepate obstruantur, nulla fiet bilis secretio, etc. (loc. cit. p. 184).

It was owing, we believe, to the all-powerful authority of Morgagni, who held that the coagulation of the blood during life was impossible, that such plain and well-supported views regarding thrombosis and embolism were neglected. See for this, *Epistola anatomico-medica, xxvi; Verba fuit de morte repentina ex vitio vasorum sanguiferum quæ sunt potissimum in thorace*. In noticing the work of Reade on *Syphilitic Affections of the Nervous System*, in this Journal, for April, 1868, an instance quite similar to this, of the teachings of a master controlling, to a very remarkable extent, medical opinion, was pointed out. John Hunter taught that the brain was not attacked by syphilis, for it would have been contrary to his theories were such the case, and all that had been taught before on the subject was forgotten, or laid aside.

In the systematic systems of practice there is not much to be found upon thrombosis and embolism. There is more in that of Reynolds than in any other, and the portion of the chapter on the pathology and morbid anatomy of softening of the brain, written by Dr. H. C. Bastian, is probably the best article upon emboli and their consequences that can be met with in the English language.

In the thesis before us Dr. Robinson has made to the literature of this subject a very valuable contribution, and one that is complete and satisfactory, so

far as the disease he treats of, diphtheria, is concerned. In the elaborate article of Dr. Lidell, before referred to, one case of thrombosis, occurring in a case of croup, is related in detail, and in the comments upon it, it is said that other practitioners have observed the rare accident. Dr. Tanner is quoted, as believing in this complication of diphtheria, but it is added, that it is not mentioned by either Aitken or Niemeyer.

In Reynolds, the chapter on diphtheria is written by Mr. William Squire, and all that is said on the subject is, that fibrinous coagula are frequently met with in the cavities of the heart, extending into the great vessels. As might be expected, there is more to be found in the *Practical Treatise on Diseases of Children*, by Meigs and Pepper. We read at page 605, "Heart clots of large size and firm consistence, evidently of ante-mortem formation, are also found in a certain number of cases where death has been preceded by peculiar signs of circulatory embarrassment," and at page 617, the symptoms attending their presence are detailed at length. We say that this was to be expected, on account of the remarkable article on *Heart-Clot as a Cause of Death in Diphtheria*, contributed by Dr. J. Forsyth Meigs to this Journal in April, 1864. The clinical observations therein recorded are made in a most masterly manner, and the deductions drawn from them are altogether incontrovertible. Dr. Meigs, who was not aware of this accident, or result, having ever before been observed, states that he first had noticed it some four years previously, or in 1860. In the *Medical Times and Gazette* for March, 1856, is a paper by Dr. B. W. Richardson, "On the Diagnosis of Fibrinous concretions in the Heart, in certain cases of Inflammatory Croup," and in it he says, "In croup of the inflammatory type death may and does occur either from an obstruction in the heart, arising from the right cavities of that organ being the seat of the fibrinous deposit, or from obstruction in the windpipe, arising from over-secretion, or lastly, from a combination of those causes." He gives the symptoms marking the cases of croup about to terminate in syncope, the result of cardiac obstruction, as distinct from those arising from obstruction in the air-passages, and nowhere else will those symptoms be found to be so well described.

To show how much this subject of thrombosis has been overlooked, we will call attention to a case of diphtheritic croup, in which tracheotomy was performed, terminating fatally, recorded in this Journal for January, 1870. The patient died with symptoms that certainly indicate heart-clot, and yet at the post-mortem examination, where nothing was met with that accounted for the fatal termination of the case, no mention is made of the condition of the heart having been examined.

In the thesis of Dr. Robinson the literature of this subject, of heart-clot in diphtheria, is very fully related in the introduction; in the first chapter the anatomy and pathological physiology of blood-clots are treated of, the writer supporting his views by facts which he has observed himself; the symptoms of this complication are then described, its detection in order to judge of the propriety of tracheotomy being held mainly in view; the distinguishing characters of the symptoms from those of other diseases with which cardiac thrombosis might be confounded are then described, and after a consideration of the mechanism by which these clots are formed in the heart, the work concludes by the mode in which they may be treated. Ten very fully detailed cases are added, all of them interesting and instructive, and moreover good examples of clinical observation.

We wish particularly to call the attention of the profession to this thesis for reasons which it is not necessary to go over after what has already been said. It is in all respects an excellent monograph; one valuable, both as a contribu-

tion to the subject, the most interesting at the present day in the whole field of pathology, and as an aid to the practitioner in making up his mind whether he may or may not, with some hope of success, attempt to give his patient one more chance for life, in that fearful disease, diphtheritic croup.

Before ending, we must express the wish that Dr. Robinson would present his work, to the profession in this country, in an English dress. W. F. A.

ART. XXVI.—*Zymotic Diseases: their Correlation and Causation.* By A. WOLFF, F.R.C.S. 12mo. pp. 177. London: J. & A. Churchill, 1872.

*The Graft Theory of Disease: being an Application of Mr. Darwin's Hypothesis of Pangenesis to the Explanation of the Phenomena of the Zymotic Diseases.* By JAMES ROSS, M.D. 8vo. pp. 292. London: J. & A. Churchill, 1872.

PROF. TYNDALL has written well upon the "scientific use of the imagination." There is, however, a certain use of the same faculty upon matters of knowledge, which constitutes rather the romance of science than its positive advancement. We suppose it to have been this that was intended to be ascribed to Charles Darwin, by some of the French Academicians, in their use of the phrase "science mousseuse." But it ought to be apprehended that some effervescence may do no harm, either to wine or to science, if it have a body of its own. Nor are we willing to deny that this is true of both of the books whose titles are above stated.

It is certainly an interesting fact that from the same publishers, in the same year, have issued two works upon the subject of the theory of zymotic diseases, using, almost identically, many of the same facts, to establish opposite conclusions. Mr. Wolff propounds and ably defends the opinion, that all zymotic disease is a process of *inflammatory disintegration*; that the maladies included under this head are closely correlated, not specific in nature or causation, sometimes convertible into each other; that the one great cause common to them all is the contact of *decaying organic matter* from various sources; and that the differences among them result almost solely from the diversity of the organs or tissues upon which this cause takes effect. Thus we have, in typhus, the blood primarily affected; in enteric fever, the bowels; in cholera, the whole alimentary canal; in smallpox, the skin; in measles, the respiratory tract; and so on.

Dr. Ross, on the other hand, endeavours with much elaboration to prove that "contagium particles" whose action upon the body gives rise to the disorders called zymotic, are *living*, in the sense of being portions detached from a living being; "anatomical units modified and individualized by a diseased process, and impressing upon the healthy organism with which they come into collision a succession of changes similar to that which preceded their own modification in the body from which they were detached." Thus, according to one of these authors, "zymosis" is an extension from one body to another of the process of death; in the view of the other, it is the morbid transfer of an anomalous life.

In recalling what has been done in similar lines of thought, in regard to these great problems of biology and pathology, we find that, whatever vague ideas may have previously existed,<sup>1</sup> Liebig first gave definiteness to the theory

<sup>1</sup> As with Stahl and Lavoisier.

of *zymosis*, about thirty years ago. It was, with him, a molecular, and essentially a chemical theory; the extension or "instigation" of modes of atomic change in one substance by contact with another already undergoing the same or a similar change. This he applied to the germinative changes in the sap of plants; to yeast action in fermentable vegetable juices; to putrefaction, and to the agency of "virus" in producing smallpox and other (now called) enthetic diseases. Not many years later, Pasteur asserted, and defended with elaborate experimentation, the opinion that the vitality of the yeast-plant (first discovered by Fabroni<sup>1</sup> in 1787) had to do with the causation of fermentation; a purely chemical theory not sufficing for the facts. Many observers have wrought, out of analogous investigations, the now familiar doctrine of "disease germs." Pasteur continues to be altogether indefatigable. So recently as October 21, 1872, he read before the French Academy<sup>2</sup> a paper communicating new observations, by which he claims to prove that the cause of the vinous fermentation of grape-juice is a minute fungoid vegetation coming from the husk of the grape.

We do not need here to review the many different opinions and practical suggestions connected with this topic; either the earlier ones, as of Thénard, or the later, of Lister, Hallier, Beale, and others. One important contribution to the scientific analysis of the facts, however, must be mentioned. Dr. John Snow, President of the Medical Society of London, delivered before that body, in 1853, an admirably written oration on "*Continuous Molecular Changes*; more particularly in their relation to Epidemic Diseases." In this discourse, Dr. Snow wrote as follows:—

"The material cause of every communicable disease resembles a species of living being in this, that both the one and the other depend on, and in fact consist of, a series of continuous molecular changes, occurring in suitable materials." "But the specific animal poisons, as they are called, are very rarely, if ever, introduced in such quantity as to produce sensible effects; the disturbance in the system, which constitutes the diseases they induce, being due to the crop or progeny of the matter first introduced."<sup>3</sup>

While Dr. Snow was undoubtedly too exclusive in his mode of applying this view to the explanation of the extension of many diseases, and especially of cholera, by the contamination of drinking water, it appears to us that, as a theory, it is the most comprehensive, and yet the most safe, of all, as involving the least conjectural expression beyond the ascertained facts. Both of the works now under notice, that of Mr. Wolff and of Dr. Ross, might, recent as they are, have nearly all their actual facts included under the wide, yet definite, category of "continuous molecular changes;" leaving the question open for more exact analysis hereafter, how far *both* life and death may, or may not, take part in causing those multiform processes called zymotic diseases.

Looking more particularly at the characteristics of the volume before us by Mr. Wolff, we find it asserting, in the first place, too broadly and absolutely, that "inflammation is a process of structural disintegration tending to structural death." This is taking a part for the whole. Inflammation *includes*, but does not consist solely of, a process of degeneration. Accepting Virchow's statement of it, we would have to regard the latter process as its consequence, or at least its termination, rather than its essence. The most important

<sup>1</sup> More fully described afterwards, by Cagnard de la Tour, Turpin, and Schwann. See Huxley, on Yeast, *Contemporary Review*, Dec. 1871.

<sup>2</sup> *Nature*, Nov. 7, 1872.

<sup>3</sup> *Oration (ut supra)*, pp 14, 15. J. Churchill, London, 1853.

*thesis*, however, of this book is, that the asserted "specificity" of zymotic, if not of all diseases, is a false doctrine. Most of the argumentation given upon this point refers to the interpretation of well-known facts. But a portion of it embraces evidence on subjects open to, and requiring, further exact observation. Mr. Wolff believes that instances have occurred of smallpox, scarlatina, and measles originating *de novo*, without contagion from like cases (pp. 129-137); and also, that under some circumstances, the "correlation" of zymotic affections is proven by the etiological transformation of one into another of the group. This is asserted (or conjectured) of intermittent and enteric fever; of oriental plague and cholera, etc. There is a great deal of interest in some of the facts given, which are by him understood as showing the origin, in certain cases, of scarlet fever from emanations of organic decay. But all these things require more extended investigation. The specific non-identity of smallpox with scarlet fever, measles, typhus, and cholera, to make the list no longer, is affirmed by facts whose number and constancy are familiar to every one. Mr. Wolff's book does not compel us to give them up.

Dr. Ross's rather startling title appears to have been suggested by an expression as old as the introduction of inoculation by Lady Mary Wortley Montagu. In one of her letters, dated at Adrianople, 1717, she wrote thus: "The smallpox, so fatal and so general amongst us, is here entirely harmless, by the invention of *grafting*, which is the term they give it." Without disrespect, we may ascribe the first thought of *pangenesis* as applied to etiology, to an ingenuous nation yet further east, and of a still earlier date. The Chinese have long taught<sup>1</sup> that, when any one is bitten by a mad dog, a little dog (*microcyon*?) is introduced from the saliva of the animal into the fluids of his victim.

There is a great deal of information and very pleasant reading in Dr. Ross's book. It reminds one of the writings of Darwin and Wallace, in the facility with which the mind is made to behold, as in a grand thaumatrope, a seemingly harmonious union of facts which have really no necessary connection. Yet there is, as with those able and brilliant authors, much sound reasoning also; so much, that it requires constant effort not to be carried away by the adroit blending of the true and certain with that which is uncertain, if not false. The leading idea conveyed in the argument of Dr. Ross has its parallel (as shown by him) in an expression of Darwin's;<sup>2</sup> in which the influence of grafting upon the foliage or fruit of a stock is compared to "inoculated disease." But the boldest conception of all appears to be, that of a resemblance between the action of "contagium particles" upon living epithelial cells, and the reproductive union of the sperm-cells and germ-cells of animals or plants. The difference between the two processes is asserted to be simply this: that the epithelial cell is an integral part of the organism affected, while "the germ-cell is either detached or semi-detached, and therefore enabled after fertilization to enter upon changes more or less independent of the parent organism." The nearest previous approach to this author's views has been made in some of the works of Dr. L. Beale.

We have not space to follow Dr. Ross through the eight animated chapters in which he endeavours to apply "pangenesis," and the struggle for existence, with natural selection and survival of the fittest, to the origin, perpetuation, and variation "from one form or a few," of all the enthetic diseases. Almost any reader, with leisure, will enjoy the whole book. Like ourselves, some, at all

<sup>1</sup> Porter Smith. See Da Costa; Address on Modern Medicine, Philadelphia, 1872, p. 24.

<sup>2</sup> Animals and Plants under Domestication, vol. iii. p. 365.

events, will fail to be convinced. To us, after reading the work just noticed, of Mr. Wolff, one of the best fruits of the perusal of that of Dr. Ross is, the refutation, by his facts and reasoning, of the denial by Mr. Wolff of the specific differences commonly supposed to exist among zymotic diseases. Not as "entities," but as *processes*, we believe them to be as fully differentiated from each other as are any species in nature; and this specificity or differentiation would still remain, as a matter of observed and demonstrated truth, even though we should have to accept, in regard to their origin, so improbable an explanation as that of "the graft theory of disease."

H. H.

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ART. XXVII.—*Contributions to Mental Pathology.* By I. RAY, M.D., author of *Medical Jurisprudence of Insanity and Mental Hygiene.* 8vo. pp. 551. Boston: Little, Brown & Co., 1873.

THE elaborate work of Dr. Ray on the Medical Jurisprudence of Insanity, and the more unpretending one on Mental Hygiene, are so well known, and are so universally regarded as among the highest authorities on the subjects of which they treat, that anything from the pen of their distinguished author is sure to have a cordial welcome from the medical profession.

The volume under notice is mainly composed of articles which have already appeared in print, and they are, without exception, so admirably written, so clear in the views expressed, and so sound in their conclusions, that, even if they were—which they are not—somewhat "deficient in that unity of doctrine and purpose which is expected in a systematic treatise," their collection in a single volume places the public under new obligations to their author. As is well said in the modest preface to these contributions: "Since their first appearance the subjects they discuss have lost none of their original interest; many of the questions they present are far from being settled; and the public are still seeking for information respecting a disease that has most important relations to private happiness and social order."

These "Contributions to Mental Pathology" are twenty-two in number. The address on the occasion of laying the corner stone of the new Hospital for the Insane, at Danville, Pa., besides giving an admirable *résumé* of the progress of public sentiment in regard to provision for the insane, presents the only sound views which should influence the public authorities when legislating on the subject. The papers on the causes of insanity, on the statistics of insanity, on the objections to moral insanity, that on doubtful recoveries, on delusions and hallucinations, on the insanity of seduced or deserted women, on the management of hospitals for the insane, on medical experts, on the insanity of King George the Third, on Shakespeare's illustrations of insanity, and on those by other distinguished English writers, are all admirably written and full of interest. It would be difficult anywhere to find in so small a compass, so complete a discussion of the important subjects alluded to.

Hardly less valuable than the articles already mentioned, are the papers that are more strictly medico-legal in their character, and in which are masterly analyses of cases in which the plea of insanity was urged in extenuation of criminal charges, and which are familiar to most students of this subject. It is only necessary to refer to the trials of Rogers, who murdered the warden of the Massachusetts State Prison; of Baker of Kentucky, who killed his brother-in-law; of C. A., a young man in New England, who, apparently without mo-

tive, took the life of a cousin to whom he had always been attached; to the case of Bernard Langley, apparently one of those forms of insanity that have been styled transitory mania, and about which there has recently been so much discussion; and that of Winnemore, familiar to all Philadelphia readers. After these is a review of a case of a different character, in which an individual, about whose insanity it is difficult, at this day, to see how there could ever have been any question, sued all concerned in his confinement and treatment, and ultimately recovered large damages. Although occurring as long ago as 1849, this "Hinchman case" has ever since been quoted by certain parties as a terror alike to doctors, friends, and hospital officers, and yet, in the language of our author, it is only "an extraordinary instance of the triumph of popular passion over justice, reason, character, and common sense; and is interesting now, not so much on account of any unusual phase of mental disease, or of any new principle of law involved in it, as of the fearful amount of injustice that may be committed under the forms of a judicial process." Lastly on our list of contents, comes a notice of contested will cases. First among these is an able analysis of that of Henry Parrish, of New York, and which has now become famous on account of the many interesting pathological questions raised during its discussion, the amount of property involved, the high character of the experts who were consulted, and all the circumstances attending its decision. The second is known as "the Angell will case," and is not less ably reviewed, and in regard to both, many points of great interest are discussed with the author's characteristic clearness and ability.

We have purposely avoided any extended analysis of the papers which form these "Contributions to Mental Pathology," for they are invariably written in so clear a style, and the views expressed are so condensed in form, that any abbreviation of them would be doing injustice to the subject and to the writer. We commend the whole book most heartily, not only to physicians, but equally to the members of the bar, and to all students of every profession, for the subjects discussed are second to few others, either in importance or personal interest.

T. S. K.

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ART. XXVIII.—*Fistula, Hæmorrhoids, Painful Ulcer, Stricture, Prolapsus, and other Diseases of the Rectum, their Diagnosis and Treatment.* By WILLIAM ALLINGHAM, F.R.C.S., Surgeon to St. Mark's Hospital, etc. Second Edition, Revised and Enlarged. 12mo. pp. 265. Philadelphia: Lindsay & Blakiston, 1873.

IT is such a short time since we were called upon to notice the appearance of the first edition of Mr. Allingham's book,<sup>1</sup> that we need do no more upon the present occasion than simply announce its republication, and call attention to one or two points in which the present issue differs from—and, we may add, is better than—its predecessor. The whole work bears marks of careful revision, and in every chapter we find that the author has incorporated the results of his further reflection and increased experience, but the most important additions seem to be those which have been made to the chapters on hæmorrhoids, on cancer of the rectum, and on the various rarer affections which in the first edition of the work were grouped together as "miscellaneous." In Chapter V., a new operation for hæmorrhoids is thus described:—

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<sup>1</sup> See No. of this Journal for January, 1872, pp. 197–200.

"During the past year I have several times removed small haemorrhoids by means of torsion after they had been seized by a clamp. The clamp I employ is one designed by me; it acts in such a manner as to grasp the pile vertically, and not laterally; after the clamp is applied I take hold of the haemorrhoidal tumour with a pair of broad torsion forceps and slowly twist it off. I have only as yet tried this mode of operating in single perineal or dorsal haemorrhoids, or where two small ones have existed, so I do not advocate its use in very pronounced cases where the tumours are large and numerous, but in some instances I think it will prove better than the clamp and cautery. There is very little pain inflicted, provided you do not clamp skin; little or no danger of hemorrhage, and an unusually speedy recovery has resulted in the cases I have operated upon."

In Chapter XV., Mr. Allingham mentions that he has performed lumbar colotomy sixteen times for cancer of the rectum, this being three times more than when the first edition of his work was published; he gives the same directions as before, for determining the position of the colon, but omits the sentence in which was advanced the claim that the method recommended had never failed him, and that he had never opened the peritoneum in the operation. In the first edition, the transverse incision and Mr. Bryant's oblique incision were equally well spoken of, but in the present edition the preference is decidedly given to the latter mode of proceeding. Instead of distending the lower bowel with *liquid*, before operating, Mr. Allingham now advises that if the gut is collapsed an attempt should be made to fill it with *air*—"as, should you use a liquid," he adds, "and be so unfortunate as to open the peritoneum, some will very probably run into that cavity, and certain peritonitis result; twice, since I wrote the first edition of this work, have I seen that accident take place."

The author has in two instances operated upon the ascending colon, on account of the obstruction having been situated above the sigmoid flexure; on neither occasion was any particular difficulty met with in the operation, but in each case emaciation followed very rapidly after the feces began to pass through the artificial anus, and Mr. Allingham therefore concludes (we think with reason) that the absorbing power of the colon is greater than is commonly supposed, and that from the opening having been made in the right rather than in the left loin, his patients sustained great loss of nourishment.

In his last chapter, Mr. Allingham now introduces for the first time an interesting account of the "Villous Tumour" of the rectum, a rare affection of which he has seen three cases. In two of these, a discharge of glairy mucus was the most prominent symptom, while in none of them was there profuse hemorrhage. The treatment recommended consists in strangulating the tumour with one or more ligatures according to the size of its pedicle. In this chapter Mr. Allingham has also introduced an account of two cases in which he resorted to excision of the coccyx for the affection described by the late Sir J. Y. Simpson as *Coccygodynia*; in one case a complete cure was effected, and in the other decided though not entire relief was obtained.

Mr. Allingham has had the good sense to omit from his second edition certain controversial passages which disfigured his work as it was originally published; and in its present form it is (as indeed the verdict of the profession has already pronounced it) one of the very best works on diseases of the rectum to which either the surgeon or the general practitioner can refer. J. A., JR.

ART. XXIX.—*Observations in Myology, including the Myology of Cryptobranch, Lepidosiren, Dog-Fish, Ceratodus, and Pseudopus Pallasii, with the nerves of Cryptobranch and Lepidosiren, and the disposition of muscles in Vertebrate Animals.* By G. M. HUMPHRY, M.D., F.R.S., Prof. of Anatomy in the University of Cambridge and Honorary Fellow of Downing College. 8vo. pp. 192. London : Macmillan & Co., 1872.

THIS is a collection of papers contributed for the most part to the Journal of Anatomy and Physiology. The myology and, in part, the neurology of certain fishes and batrachians are considered, though the most comprehensive study, entitled "Disposition of Muscles in Vertebrate Animals," is designed to give a general outline of the subject, and to ascertain the relationship of the muscles of the higher animals to one another, and so grouping them. The author starts with the proposition that "the locomotory system of a vertebrate animal consists fundamentally of a successional series of alternating transverse skeletal and muscular planes, which extend nearly through the outer wall of the animal."

The greater part of the volume is devoted to purely didactic statements. Occasionally a broad inference is presented.

"There can, I think," says the author, on page 18, "be little doubt that the *curra* of the *diaphragm* in mammals are formed by the lumbar parts of the *subvertebral rectus* bending downwards on the sides of the aorta and encircling it, and that the lateral parts of the *diaphragm* are in like manner formed by the inflection of the lateral parts—the *depressores costarum* and *transversalis* parts—of the same sheet."

"The hinder part in which the caudo-crural thus terminates appears to correspond with the *semitendinosus*, the anterior superficial part being referable to the *gracilis* and the deeper part to the *semimembranosus*; and I cannot but suspect that the inscription thus formed may afford a more probable explanation than has yet been given of the remarkable inscription of the *semitendinosus* of man."

In speaking of the skeleton with reference to a mooted point in myology he uses the following suggestive language (p. 106) :—

"Huxley uses the terms 'episkeletal' and 'hyposkeletal' to indicate the muscles situated respectively above and below the endoskeleton, and developed from above and beneath the protovertebræ. Strictly speaking, however, all the muscles are *interskeletal*; forasmuch as the intermuscular septa extend, from the *transversalis* fascia to the skin, through the entire thickness of the muscular layer which appears to be primarily and essentially one; and the skeletal tissues undergo chondrification and ossification in certain parts only and in certain planes."

In making these extracts we should state that Prof. Humphry sets forth his views in a very guarded manner, unmarked by any pet theory or prejudice. His book is a valuable contribution to comparative myology, a branch of science at present attracting much attention.

H. A.

ART. XXX.—*Rhode Island Nineteenth Registration Report, 1871.* Prepared by EDWARD T. CASWELL, M.D., under the direction of Joshua M. Addeman, Secretary of State. 8vo. pp. 116. Providence, 1872.

*Fourth Annual Report of the Secretary of State of the State of Michigan, Relating to the Registry and Return of Births, Marriages, and Deaths for the year 1870.* 8vo. pp. 386. Lansing, Mich., 1872.

WERE we able, in the space allowed us, to attempt a detailed and critical review of the tables given in these reports, we fear that few readers would follow us. It is only when statistics are needed for some especial purpose, that labours of this kind are carefully read. Nevertheless, we are sure that all readers of this Journal will be glad to be informed of the earnest and persistent efforts, shown in both the above-named reports, at the accurate statement and intelligent interpretation of facts so important to society and to medicine. There is certainly a growing appreciation and understanding of vital statistics among educated men. Within and without the medical profession we discover a higher and a more discriminating valuation of such facts. In the employ of many States, as well as in the Census Bureau at Washington, are men who have given much time and study to the subject; men who can at least be trusted to avoid the absurd and dangerous errors of some who have preceded them.

Two things are needed to render social and vital statistics valuable: first, thoroughness and intelligent accuracy in gathering facts; second, mathematical ability, clearness of intellect, and breadth of view, to combine, compare, and interpret the materials collected.

About twenty-five years ago the attention of a few leading men in the medical and legal professions in Rhode Island was attracted to the insufficiency and non-enforcement of the early Colonial and State laws as to the recording of births, marriages, and deaths. The evils arising from the limited scope and imperfect execution of existing laws were clearly perceived and stated. An act designed to meet the desired ends was passed by the legislature; but failed, practically, to secure full returns. Two years later the act was amended, and has since continued to subserve better and better every year the objects aimed at. For this we may justly thank the physicians throughout the State, whose intelligent appreciation and coöperation were secured by the wise and zealous labours of a few prominent members of the State Medical Society.

The first of the series of Rhode Island reports appeared nearly twenty years ago. It was based on data confessedly imperfect. From some towns no reports were obtained; and from others, reports manifestly incorrect and even glaringly absurd. Still, the work contained much useful information, and not a little intelligent exposition of the true value and meaning of registration.

From that time to the present the successive annual reports have exhibited great care and high talent. A committee of the State Medical Society has constantly supervised the work, and zealously laboured to procure fulness and accuracy in the returns. This committee has always included men interested in the subject, and especially qualified for their duties. Some of these have remained upon the committee year after year, continually adding by experience to the value of their services. Dr. Edwin M. Snow, who has gained a national reputation as a statistician, has been long upon the committee, and, if we remember rightly, during some years the compiler of the report. The present number is the work of Dr. Edward T. Caswell, a gentleman of known culture and intelligence, and who may be presumed to inherit mathematical talent from

his honoured father, long Professor of Mathematics and late ex-President of Brown University.

The representation of the great facts of social life and death is almost exhaustive in both these works. Every fact seems to be presented under every possible relation. Population, according to ages, sex, etc., is taken from the United States census for 1870. Births, marriages, and deaths are compiled from original town and county reports, and are viewed, in all aspects, as to age, sex colour, nativity, parentage, month of year, social position, and almost every other common and uncommon relation. Aggregates and percentages are combined, compared, and manipulated in all imaginable ways. Divorces are included in the Rhode Island report. Meteorological tables are given in both; but the relation of weather to certain diseases is much more fully set forth in the Michigan report.

Causes of death are very fully presented in both works. We are in a little doubt whether, in the Michigan report, the tables be not somewhat too detailed and elaborate. They seem, at least, less easily comprehensible.

In both reports, however, had nothing been given but the naked figures, the reader of ordinary gifts and average industry would have been likely to turn away bewildered. But in the Rhode Island report, especially, all the more important results, observations, and deductions are summarized and interpreted in a manner to interest and instruct even the indifferent reader.

In the Michigan report we have a much larger mass of facts; and apparently an equally zealous and praiseworthy aim at thoroughness and accuracy. The amount of labour expended on this document is appalling to contemplate. It is a mine of curious research and ingenious combinations. While it is not pretended that the returns are as full and accurate as in some of her older and more compact sister States, it is evident that Michigan aims as high as the best. The summaries, explanations, and deductions seem to us a little less valuable than those of the older State. Nevertheless, the suggestions and comments are sometimes thoughtful and judicious.

Dr. H. B. Baker, who compiled the Michigan report, is evidently deeply interested in his work. He states that the returns embodied in the present volume are more complete than in either of its predecessors.

In conclusion, we would say that both States may justly be proud of their admirable reports, and of the system which these represent. We would commend the example to all States which have not yet taken a step so imperatively demanded by the interests of civilization and humanity. B. L. R.

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ART. XXXI.—*Evolution of Life.* By HENRY C. CHAPMAN, M.D., Member of the Academy of Natural Sciences, Philadelphia. 8vo. pp. 179. Philadelphia: J. B. Lippincott & Co., 1873.

THE subject of evolution has been tormented by so much unintelligent criticism that we welcome with pleasure a concise, well-written compendium of its leading features by one whose training and unusual opportunity have well fitted him for the task. For a first essay it is undoubtedly a bold one, and it has been creditably accomplished.

No doubt the most difficult department of popularization of science is that of Natural History. Its technology is vast, and far removed from the expressions of common life. Its propositions cannot be stated as in physics and

mathematics by arbitrary signs which are understood by all, but the simplest use of a factor must be previously explained or the demonstrations interrupted for that purpose. Hence, they lose that crispness and directness of the physicists. Again, definitions are extremely difficult to frame, and the simplest expressions are subject to many exceptions. Authors in consequence present varying conclusions, so that it becomes almost impossible to teach without contradiction, or to make assertions which may not be construed into error by the critical. Remembering this it would be unfair to judge Dr. Chapman for dwelling too long upon the general outline of natural history, such as could be easily secured from any book of elements, or to regret that we must frequently take leave of a subject by the time we have been fairly introduced. The slight thread of argument is often lost sight of among the loosely gathered facts presumed to display it. His few errors of statement are venial, and are never sufficient to impair the force of the conclusion he adduces. We would have been better satisfied had he more clearly stated the minute anatomy of the sponge, and not have subordinated the flagellate-celled stroma to the amœboid so completely as appears in his descriptions, and is borne out in his plates. Surely the affinities between the sponge and the flagellate infusoria are very intimate. Instead of the Spongidae ending in the branch leading to the jelly-fishes, a very important if not the most important branch should have led to the Infusoria. We use the term Infusoria as accepted by the author (p. 32); and cannot fail observing that while this group is observed leading to articulate worms as in tree II.—in tree III. the articulates are seen to be derived independently—and the infusoria are supposed to end ignobly without issue.

The numerous tables (trees) which have been employed throughout the book are very suggestive, and by those sufficiently advanced to grasp the presentation of a theory of evolution can be studied apart from the text, which, in truth, occasionally falls short of the tabulated schemes. Particularly may we commend tree VI., designed to show the evolution of the bird from the reptile. This demonstration, which is perhaps the most satisfactory of any, tells its remarkable story at a glance.

The instructive and elaborate ethnographic chart from Haeckel, which is given as the frontispiece, strikes us as dealing rather boldly by the American races. With the same confidence that marks the Indo-Germanic migration westward another tract is presented evidently of much less value, passing through Asia, across Behring's Straits to America, and thence can be traced throughout the continent, including South America. There is the vaguest kind of theorizing in support of this sequence, and none whatever for the origin of the South American races from the north. We notice several interrogation marks in support of supposed migrations from the east across the Pacific Ocean. It would have been well, we think, to have used these marks more freely, and have sprinkled them without stint over both of the Americas.

The authorities consulted are numerous; conspicuous among them appear the names of Haeckel, Darwin, Huxley, and Buchner. The views of the first of these will prove more novel to the reader, while the last will, perhaps, be the most startling. Primitive man is remorselessly set down as a gibbering wretch "with no language excepting the natural cries inherited from his ape ancestors."

H. A.

ART. XXXII.—*Wöhler's Outlines of Organic Chemistry.* By RUDOLF FITTIG, Ph.D., Nat. Sc. D., Professor of Chemistry in the University of Tübingen. Translated from the eighth German edition, with additions, by IRA REMSEN, M.D., Ph.D., Professor of Chemistry and Physics in Williams College, Massachusetts. 12mo. pp. xxxii., 530. Philadelphia: Henry C. Lea, 1873.

PRECEDED, as this work is, by an introductory chapter upon the constitution of chemical compounds, which has been introduced by the translator to aid those who are not familiar with the recent changes in the theories of chemistry, it will be found most complete, and useful to all those who desire to study the subject, or are in want of a handbook for reference.

Organic chemistry has so important a bearing upon many of the branches of medicine, that a certain familiarity with it is, to say the least, convenient to those who wish to keep up with the advance in pathology and therapeutics, and to form an idea of the curious chemical relationship apparently existing between some of the more important remedies which are coming into general use. Hence, though this book is not especially intended for those interested in medicine, it contains much that may be of value to them; and, in addition to those subjects of more varied interest, a considerable space has been devoted to what are more generally considered the property of the profession—the ingredients of the blood, urine, bile, etc.

H. B. H.

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ART. XXXIII.—*A Treatise on the Theory and Practice of Obstetrics.* By WILLIAM H. BYFORD, A.M., M.D, Professor of Obstetrics and Diseases of Women and Children in the Chicago Medical College, etc. Second Edition, thoroughly Revised. 8vo. pp. viii., 469. New York: Wm. Wood & Co., 1873.

CARELESSNESS in composition is the crying fault of medical authors—due, perhaps, to the wear and tear of a busy practice, to the hurry of the age, and to the lack of any literary training. Yet the language of an author, as much as his person, needs the toilet. So telling is the costume of a thought, that the tricks and tropes of oratory often pass for argument, the ornaments of rhetoric for truth. The cadenced twaddle of the Koran still imposes upon the understanding of the learned Moslem, its jingle still tickles the ear of the untutored nomad. On the other hand, originality and sterling merit can hardly atone for a dreary and obscure style. From a disregard of these maxims many an author has either failed altogether, or else has gained but a short-lived reputation. It was only for a few brief hours that the rabble of hucksters and fishermen tossed up their caps in honor of the unkempt Massaniello.

This growing evil induced us, some two years ago, to review the first edition of the work before us. Our criticism was, perhaps, too harsh; but if it has prompted the author "to thoroughly revise the whole, and rewrite a portion," we regret it no longer, for it has served our purpose. We now can as heartily congratulate him as we then could not. Errors of grammar and infelicities of expression are still too conspicuous, but they are a tithe of what they were; and really the book is in every respect so vastly improved that we have not the heart to give them.

With some of his views we differ; his teachings are not always above criticism; but, being those of a thoroughly earnest and practical man, they cannot lead the student far astray. In comparison with the first edition, this one contains much to praise and little to blame. To apply a famous mōt of Nesselrode's, Prof. Byford "has not been pouting, he has been reflecting." W. G.

QUARTERLY SUMMARY  
OF THE  
IMPROVEMENTS AND DISCOVERIES  
IN THE  
MEDICAL SCIENCES.

ANATOMY AND PHYSIOLOGY.

1. *Functions of the Cerebrum.*—It is admitted by all physiologists that some foundation exists for the statements made by Gall in regard to the localization of the functions of the brain in different parts of its structure, and that there is even a germ of truth in the extravagant assumptions of the later school of phrenologists. The now well-ascertained function of the centre occupying the third left frontal convolution is an important fact in favour of the general principle contended for by Gall; and the restriction of the vaso-motor centre to the upper dorsal and lower cervical regions of the cord, of the centre governing the urino-genital apparatus to the lumbar region, and of the nuclei of various nerves to very limited segments of the nervous centres, all tend to support his view. With regard to the higher functions of the brain, however, there appears to be as yet no means of defining or, if we may so call it, differentiating the several faculties which collectively form or represent the mind; whilst the examination of the heads of men celebrated or notorious for certain intellectual qualities has by no means borne out, but on the contrary has often been directly opposed to, Gall's theories. It seems tolerably clear that any additions to our present knowledge of the functions of the brain can only be obtained by very slow degrees, and by the united labours of the anatomist, the physiologist, and the physician; the former examining and comparing, or experimenting on animals, and the latter taking advantage of those rare cases of injury or defective development which occur in the human subject. As a rule, the circumstances under which injuries of particular regions of the brain occur are of such a nature that the whole organ suffers, and it is impossible to distinguish between the general and the local effects. Now and then, however, a case does occur in which this distinction can be drawn, and of such is one detailed in the last part of *Virchow's Archiv* by Dr. WERNHER.

In speaking of this case we may premise that Fritsch and Hitzig a year or two ago demonstrated that the gray cortical substance of the convolutions of the frontal lobes of the cerebrum contained the centres for certain movements, of which they determined five well-defined groups. In the gyrus which, in accordance with the nomenclature of Owen, they call the pre-frontal, where the cerebral substance makes a sharp curve downwards and forwards, lies the centre for the movements of the muscles of the neck; somewhat further backwards, where the pre-frontal gyrus curves round into the post-frontal around the fissura frontalis, they found the centre for the movements of the extensors and adductors of the forearm; at a point still a little further backwards, and nearer the median line, that for flexion and rotation. Moreover, the centre for

the movement of the foot is situated in the post-frontal gyrus, near the median line; and the centre governing the movements of the facial muscles lies in the middle part of the supra-Sylvian gyrus. The case recorded by Wernher exhibited symptoms that were strikingly concordant with these observations. The patient fell from a wagon, and received a severe cut on the left temporal, and another on the parietal, region. The former was accompanied by a depressed fracture of moderate extent. During the first twenty-four hours there were literally no symptoms. Towards midday on the following day he became completely aphasic, and there was some paralysis of the facial muscles. The day after, again, paroxysmal convulsive muscular movements occurred, limited to very definite groups of muscles on the opposite side of the body, from the occurrence of which the progress of the disease of the brain was clearly followed; the muscles of the neck were first affected, then those of the right side of the face, then those affecting flexion and extension of the fingers. The pronators and supinators of the forearm, the muscles of the upper arm, those of mastication, and those moving the globe of the eye, were unaffected. Death took place on the sixth day after the accident. A careful post-mortem examination was made, which showed that the depressed portion of bone was situated exactly opposite the middle of the fossa Sylvii. The convolutions were much flattened, those of the left frontal lobe being covered with pus, while the surface of the brain was softened. The pus extended back to the parietal lobe. The remaining parts of the brain were sound. The case shows the importance of accurate clinical observation, and the assistance that may thus be given to very recondite physiological problems.—*Lancet*, Jan. 4, 1873.

2. *Effect of Stimuli on the Secretion of the Parotid Gland.*—Dr. P. B. STONEY took advantage of the opportunity afforded by a patient who was admitted into St. Bartholomew's Hospital with a parotid fistula of long standing, to make some experiments on this subject.

“These experiments show (1) that mastication alone stimulates the flow of saliva from the parotid to a considerable extent. (2) That the effects of taste vary with the sapid substance, sugar having no effect, while tartaric acid acts most powerfully. (3) That sapid substances act equally when applied to the tip and base of the tongue. (4) That the effect of mastication and taste together is much greater than that of mastication alone. (5) That mental stimuli had a considerable effect in one experiment, but in others none at all. These results accord in some respects with those obtained by Schiff in his experiments on dogs, though differing from them in others. This physiologist observed that mastication alone had little or no stimulating action on the parotid secretion in dogs, and Dr. Brunton informs me that he has found this to be the case also in rabbits, while in the experiments above described the action was very distinct. The effect of the application of sugar and tartaric acid to the tongue of dogs was the same as that observed by me. The slight effect of purely mental stimuli in this case is remarkable, as the parotid is stated by Kühne to be readily affected by them, but this may have been due in great measure to the character of the patient, who seemed to be dull and unimaginative. An experiment was also made for the purpose of determining the time required for the absorption of drugs and their excretion by the saliva. For this purpose iodide of potassium was administered, and the saliva constantly tested till it appeared. The time which elapsed between its administration by the mouth, and its appearance in the saliva from the parotid duct, was found in one experiment to be 29 minutes 30 seconds.”—*Journ. Anat. and Phys.*, November, 1872.

3. *Digestion of Fat.*—SCHIFF has instituted a number of carefully devised experiments to determine whether the pancreatic secretion is essential to the digestion of fat. It appears from these experiments that without the pancreas, animals still retain complete power of digesting fat by means of their intestinal secretions.—*Lond. Med. Record*, Jan. 15, 1873.

4. *Cause of Sleep.*—OBERSTEINER considers the proximate cause of sleep to be the accumulation of acid products in the brain, just as in the case of mus-

cular fatigue. The periodicity is merely a matter of custom like many other bodily functions. All conditions which interfere with the conveyance from the brain of acid combustion-products tend to induce sleep, and all conditions which favour their removal have a contrary effect. The conditions lie chiefly in the state of the circulation. Active hyperæmia in this way prevents sleep. Passive hyperæmia or venous congestion has an opposite effect. Anæmia, by diminishing the activity of interchange between the blood and tissue, favours sleep. Changes in the chemical constitution of the blood, such as by narcotics, interfere with the absorption and excretion of the acid products, and hence cause sleep. He compares the cerebral vessels to the bronchial vessels, and destined only to nourish the tissue. The real initiative to cerebral action proceeds from the nervous system itself. Hence to allow of rest from the ordinary association links of cerebral action the brain must be disconnected from outward stimuli. When this is done a tendency to sleep ensues. So also if one impression is kept up long. The continuance of an impression is equivalent to none at all. The will acts as a sort of inhibitory centre to the reflex cerebration. In sleep this is at rest, and hence cerebration shapes itself into dreams. These may be conditioned by stimuli which are not of sufficient intensity to rise into consciousness.—*Journ. Anat. and Phys.*, November, 1872; from *Archiv f. Psychiatrie*, Bd. 29.

5. *Trophic Action of Nervous Centres on Muscular Tissue; Alterations in Muscles after Lesions of Nerves.*—VULPIAN (*Compt. Rendus*, lxxiv., p. 964) finds that the gray matter of the spinal cord and medulla, and the corresponding parts in the pons Varolii, exert a trophic influence upon muscles through their motor nerves as well as upon the motor nerves themselves. When the motor nerves are cut, the muscles, which are thus severed from connection with their trophic centres, become atrophied, and their contractility diminished. That the trophic influence is conveyed to the muscles through the motor nerves, and not through sympathetic fibres, is shown by the facial muscles becoming atrophied after division of the facial nerve close to its origin, when it contains only motor and no sympathetic fibres, as well as by the atrophy of muscles, which occurs after degeneration of the anterior horns of the gray substance in the spinal cord.—*Journ. of Anat. and Phys.*, November, 1872.

6. *Changes in Electrical Excitability in the Muscles after Death.*—M. ROSENTHAL states that shortly after death—from one and a half to three hours—the reaction of the muscles to electrical stimulation disappears. He thinks that in cases of apparent death electrical exploration of the muscles will be of great value. He mentions a case in which he in this way diagnosed apparent death lasting forty-four hours, and thus prevented burial.—*Journ. Anat. and Phys.*, November, 1872; from *Wien Med. Presse*, Nos. 18-19, 1872.

7. *Suppression of Perspiration.*—SOCOLOFF gives an abstract of the results which follow varnishing the skin and suppression of the cutaneous secretion.

1. A few hours before the death of the animals so treated, clonic and tetanic spasms appear in various groups of muscles, while the temperature in the rectum sinks in a marked degree.

2. Enveloping the animals in wadding did not serve to raise the temperature or arrest the fatal result.

3. Respiration of oxygen proved ineffectual to resuscitate the animals.

4. In the stomach ulcers were observed, the result of deep extravasations.

5. Albumen appeared in the urine very soon after the skin was varnished.

6. In all cases a diffuse parenchymatous inflammation of the kidneys was observed—sometimes swelling of the cells, and sometimes fatty degeneration. This result was independent of the nature of the varnish used, whether turpentine varnish, or gelatin, or gum.

LANG (*Arch. d. Heilkunde*, xiii., pp. 277-287, 1872) investigates the cause of death when the skin has been varnished. In addition to other phenomena he found an hour or two after death “triple phosphate crystals” in various parts of the body, and some of the uriniferous tubules blocked with a finely granular

dark mass. He thinks that the triple phosphate crystals are the result of decomposition of urea, and that the cause of death is ureæmia.—*Journ. Anat. and Phys.*, November, 1872; from *Centralblatt*, No. 44, 1872.

8. *Supernumerary Mammæ*.—Dr. P. D. HANDYSIDE relates (*Journal Anat. and Phys.*, November, 1872) two cases of quadruple mammæ, the lower being rudimentary, in two adult brothers. He states that Dr. A. Mitchell informed him that he had seen a similar case of quadruple mammæ in a farm servant, aged twenty-seven.

Supernumerary mammæ in males are very rare, but less so in females. Dr. ROBERT, of Marseilles, communicated to the Academy of Sciences, a case of a woman, who in addition to two mammae in the natural situation, had a third in the left groin (see number of this Journal for August, 1828, p. 412). Dr. ROBERT LEE read before the Royal Medical and Chirurgical Society, in 1838, a case of a female who had four mammae; the two lower were fully developed, and there was abundance of milk in them; the two upper were smaller and the nipples small and flat, but when gently pressed a milky fluid exuded (see number of this Journal for May, 1838, p. 172). Dr. Lee refers to various other cases of supernumerary mammae in females (see *Trans. Royal Med. Chirurg. Soc.*, vol. iii., second series, p. 266 *et seq.*, and *Dict. des Sciences Médicales*, tom. xxxiv. pp. 527 and 529). In one case five mammae existed.

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### MATERIA MEDICA, GENERAL THERAPEUTICS, AND PHARMACY.

9. *Researches on the Action of Hyoscyamia*.—The following are the conclusions drawn by Dr. OULMONT from his researches on the action of hyoscyamia:—

“I. Hyoscyamia represents all the active principles of hyoscyamus. The fixity of its composition gives to the results which we obtain from its use a precision which hyoscyamus in substance does not yield in the same degree.

“II. Hyoscyamia should be given at first in weak doses ( $\frac{1}{2}$  grain daily), either in pills or by hypodermic injection. We may gradually increase the dose to five or six times this quantity.

“III. The remedy must be continued even if there are slight symptoms of poisoning, such as dryness of the throat and dilated pupils. But if the symptoms become grave, we must suspend it. These symptoms are temporary, and disappear in a few hours.

“IV. Hyoscyamia exerts a narcotic action on man. It is efficacious against pain, and particularly against neuralgia; but its power is less than that of opium and of belladonna.

“V. Hyoscyamia exerts a favourable action in spasmodic and convulsive neuroses. It cures mercurial trembling in cases where every other remedy had failed. It has produced a notable improvement in senile tremour and paroxysmal agitans.

“VI. Its action in locomotor ataxy is null.

“VII. In traumatic tetanus, although the patient died, this remedy produced a sufficiently notable remission of the symptoms to leave the question of its power still open and to call for new experimentation.”—*Practitioner*, Jan. 1873, from *Bulletin de Thérapeutique*, Dec. 15, 1872.

10. *Influence of Belladonna on Secretion*.—KEUCHEL (*Das Atropin und die Hemmungsnerven*. Inaug. Diss. Dorpat, 1863) found that the dryness of the fauces, which followed the use of belladonna or atropia, is due to paralysis of the chorda tympani, which is the nerve regulating the secreting function of the submaxillary gland. This nerve contains two sets of fibres, one of which, as Ludwig has shown, acts on the gland-cells, and causes them to secrete;

while the other set, according to Bernard, induces dilatation of the arteries of the gland, and thus supplies more abundant material for secretion to the cells of the gland. Keuchel did not determine whether atropia arrested secretion by paralyzing the true secreting fibres in the chorda, or by destroying the power of the vaso-inhibitory fibres, and thus preventing a sufficient quantity of blood to supply the increased secretion from being furnished to the gland. Heidenheim (*Pflüger's Archiv*, v. 40) has investigated this question, and finds that, when the chorda tympani is irritated after the injection of atropia, no saliva is secreted by the submaxillary gland, but its vessels become dilated as usual. This shows that the arrest of secretion is entirely due to paralysis of the true secreting fibres in the chorda tympani, and not of the vaso-inhibitory ones. The experiment also affords a convincing proof of the separate existence of these two sets of fibres. Irritation of the sympathetic caused secretion after the injection of atropia, and the termination of the sympathetic filaments in the gland must therefore have a different relation to the secreting cells from those of the chorda tympani. When the paralysis of the chorda tympani which atropia produces is removed by physostigma, irritation of this nerve will again cause secretion. Sometimes, however, the secretion again stops, but this is due to quite a different cause from its arrest by atropia. The physostigma, as has already been said, restores the power of the secreting fibres, but it at the same time causes such contraction of the vessels that they do not dilate when the chorda tympani is irritated; and the supply of blood to the secreting cells is therefore too scanty to supply them with sufficient material for secretion. Physostigma also stimulates the roots of the chorda tympani in the brain and causes salivation, which ceases when the chorda tympani is divided. Nicotia and digitalin also stimulate secretion in the same way as physostigma, but large doses of nicotia paralyze the chorda. Dr. Sydney Ringer (*Practitioner*, August and October, 1872) finds that belladonna or atropia can prevent or check sweating, whether this be due to external warmth or to disease. When it is the result of disease, the subcutaneous injection of  $\frac{2}{60}$ th of a grain of atropia is generally sufficient to arrest it for one night. The dose does not dilate the pupils, but it produces dryness of the fauces. Stramonium has a similar effect.

Ringer also mentions (*Handbook of Therapeutics*, 2d ed. p. 361) that belladonna arrests the secretion of the mammary glands. It would thus appear probable that there may be special secreting nerves of the sudoriferous and mammary glands, of a similar kind to those contained in the chorda tympani, although the existence of such nerves has not yet been demonstrated. The fact that the secretion of these glands is arrested by the local application of belladonna, seems to indicate that the arrest is due to paralysis of the ends of the nerves in the gland, just as in the case of the chorda tympani.—*London Med. Record*, Jan. 15, 1873.

11. *Action of Digitalis on the Bloodvessels.*—Drs. BRUNTON and MEYER contribute to the *Journal of Anatomy and Physiology* (November, 1872) an instructive paper on this subject. They conclude, first, that digitalin causes contraction of the arterioles. This is proved by the small height of the pulse-wave, and by its descent becoming more gradual after the injection notwithstanding the increased blood-pressure. Second, that the slowing of the pulse is probably due in part to the increased blood-pressure which results from the contraction of the arterioles.

12. *Action of Ergot.*—HANDELIN has investigated this subject under the direction of Professor Schmiedeberg. He finds that an aqueous extract of ergot is much more active than an alcoholic extract. Before injecting the aqueous extract into the veins, he neutralized it with sodium carbonate. Small doses caused anaesthesia and loss of the power of co-ordination; larger ones produced paralysis both of voluntary and reflex motions. The peripheral nerves were unaffected, and the paralysis was, therefore, due to an affection of the nerve-centres. During paralysis, convulsions and myosis were observed. The pulse is at first quickened, but afterwards its rate steadily decreases till death.

occurs. Small doses cause the blood-pressure to sink temporarily; large doses, permanently. The active principle is soluble in water, and is contained in the aqueous extract, for the effects produced by the injection of the aqueous extract correspond closely to those observed by Arnal and Wright after poisoning by ergot in substance. It seems not to be soluble in alcohol, or only to a slight extent, as ergot loses none of its activity by being extracted with alcohol. The alcoholic extract, however, causes vomiting. Klebs found dilatation of the pupil, rise of arterial pressure, and convulsions, instead of diminished pressure and myosis; and these differences Handelin is inclined to attribute to the different preparations employed. The author was unable to isolate the active principle from the aqueous extract; and, when mercuric chloride or tannic acid are used as precipitants, decomposition is invariably produced; so that it is impossible that the ecbolin and ergotin of Wenzell can be the active principles.—*Lond. Med. Record*, Jan. 8, 1873, from *für Kenntniss des Mutterkorns, in physiologisch-chemischer Beziehung*, Dorpat, 1871.

13. *Apomorphia*.—The evidence in favour of the valuable emetic properties of apomorphia has received an important addition from the observations of Dr. SIEBERT (*Archiv der Heilkunde*, December, 1871; and *Gazette Hebdomadaire*, No. 22, 1872, p. 366). He finds that this agent does not produce any effect on the digestive organs except the simple production of emesis. After its injection under the skin the pulse becomes irregular and slightly accelerated, and these changes are most pronounced at the moment of nausea and before vomiting, while after vomiting slowing takes place. In short, apomorphia affects the circulation in very much the same way as tartar emetic and ipecacuanha; a similarity that is further shown by the lowering of the temperature which succeeds the emesis. It differs from these substances, however, in being altogether destitute of irritant property; its injection under the skin does not produce inflammation, and neither diarrhoea nor disturbance of digestion follows its administration. Dr. Siebert found that the minimum quantity requisite to produce emesis by subcutaneous injection is, in man, from 0.09 gr. to 0.1 gr., in cats 0.3 gr., and in dogs 0.015 gr. to 0.03 gr. He could not discover the maximum dose that can be given to cats and dogs without producing injurious effects, because even when doses 80 or 100 times as large as the above were given, there were no symptoms of cerebral disturbance. He believes that in man the dose may, without risk, be increased to 0.2 or even 0.6 gr. When given by the stomach much larger doses are of course required. Thus, a man of forty-nine years took 0.95 gr. and only nausea resulted, and when he took 1.5 gr. emesis occurred without any injurious effects.—*Journ. Anat and Phys.*, November, 1872.

14. *The Combined Effects of Opium Alkaloids and Chloroform*.—The statement of CLAUDE BERNARD and NUSSBAUM (see number of this Journal for January, 1870, p. 240), that by administering morphia and chloroform in combination very complete anaesthesia may be obtained with a quantity of chloroform greatly less than is required when chloroform is alone given, has received confirmation and extension from the observations of MM. Labb   and Guyon and Dr. Rabuteau. The former observers mention (*Journal de Pharmacie et de Chimie*, Mai, 1872, p. 398) that among their other results they found that this combination produces an anaesthesia of long duration, which may be prolonged still further by successive small doses of chloroform. They believe, therefore, that by this combination the risk of fatal accidents is greatly diminished. Dr. Rabuteau, towards the termination of his paper on the opium active principles (*Journ. de l'Anat. et Phys.*, No. 3, 1872, p. 302), expresses his adherence to the statements of previous observers, and adds that nearly all the opium alkaloids, even those which are not soporifics, are able to continue the analgesic action of chloroform, because nearly all of them possess the power of lessening sensibility. Narcotine, however, is not able to do so; but he has found that narceia is nearly as efficient as morphia, while codeia and papaverin only feebly continue the action of chloroform.—*Journ. Anat. and Phys.*, November, 1872.

15. *Therapeutic Properties of Bromide of Potassium.*—Dr. AUGUSTE VOISIN has obtained from the Academy of Medicine the Jourieux prize of 1871, for a memoir entitled, “*Etude historique et thérapeutique sur le Bromure de Potassium.*” This memoir will be published in full in the “*Mémoirs*” of the Academy, and in the mean time the author has furnished an extract from it to the *Archives Générales de Méd.* (January and February, 1873).

Dr. V. regards the action of the bromide of potassium as twofold: 1, a sedative action on the spinal cord and medulla oblongata, and 2, a constrictive action on the muscular fibres and capillaries, which is seen in the anaemia of the organs and tissues which it produces. The first action explains its efficacy in the states of disease accompanied by excitement of the cord and medulla, such as epilepsy, chorea, simple and traumatic tetanus, spinal irritation of hysterical patients, painful paraplegia of nervous females, and pains and cramps of spinal origin. It is, on the other hand, useless in pains of peripheral origin, gastralgia, and in general in painful conditions which have not a special origin. By its second action, that of rendering anaemic the tissues, it is useful in simple congestive visceral affections, and where no neoplastic effusion exists, as in simple meningo-cerebral congestion; but it is useless in chronic diffused meningo-encephalitis, and other inflammatory affections accompanied with plastic exudation or proliferation of tissue. This action makes it useful in spermatorrhœa, and in diminishing buccal, pharyngeal, and vaginal secretion, as in simple leucorrhœa.

Its efficacy in epilepsy is incontestable, even where a great number of attacks have occurred (4000), or when the disease is of long duration (fifteen years). Cure is interfered with by organic causes—hereditary tuberculosis and alcoholism, malformation of the brain, onanism, plastic effusions, sclerosis, clots, softening, conditions often causing loss of special sense or motor power. Menstrual epilepsy is less favourably affected by the bromide. On this subject M. Voisin gives ample details. As to tetanus, he observes that most of the wounded soldiers at the Saltpêtrière during the siege of Paris, who had tetanus, suffered for some days previously from clonic spasm of the limb when it was touched or during the dressings. Warned by this observation of soldiers in neighbouring wards, he administered the bromide in full doses in all such cases in his own wards (6 to 11 grammes a day). None suffered from tetanus, although one of them presented the first phenomena of tetanus for twenty-four hours. He relates three cases of well-marked traumatic tetanus, uninfluenced by chloral, in which cure was effected by bromide of potassium in an initial dose of 8 grammes (120 grains), and three subcutaneous injections of morphia during the day in the right thigh.

Bromide of ammonium has not seemed to him to produce quite the same effects as bromide of potassium. The bromide of sodium he regards as having an identical action. The bromide of cadmium produces vomiting, which renders its administration impossible.

M. Voisin insists that, vast as is the field of usefulness of bromide of potassium, its employment must be restricted to cases in which the spinal cord is excited, and needs to be tranquillized; and to those in which there is reason for exercising a constrictive action on the capillary vessels and depriving the tissues of blood. Beyond this range of cases, the employment of the bromide is, he thinks, out of place; and it would injure the reputation of this medicine to employ it against all painful sensations, of whatever character and whatever origin they may be.

16. *Action of the Bromides in Pruriginous Affections.*—Dr. GUÉNEAU (de Mussy) extols (*Gazette Médicale*, No. 48, 1872) the efficacy of the bromides applied locally in pruriginous affections of the external and internal integuments. It recommends their use, especially in pruritus vulvæ. He employs the bromides either in ointment or solution.—*Revue des Sciences Médicales*, Jan. 1873.

## MEDICAL PATHOLOGY AND THERAPEUTICS, AND PRACTICAL MEDICINE.

17. *On the Communication of Syphilis in the Practice of Vaccination.*—Mr. JONATHAN HUTCHINSON read before the Royal Medical and Chirurgical Society (January 28, 1873) a second report on this subject, which possesses deep interest. For the following excellent analysis, with comments by Mr. BERKELEY HILL, we are indebted to the pages of *The London Med. Record* (Feb. 12th).

"In bringing forward this evidence, in addition to that published by Mr. Thomas Smith in the fourth volume of the *Clinical Transactions*, and by himself in the fifty-fourth volume of the *Medico-Chirurgical Transactions*, Mr. Hutchinson has established beyond doubt, even in the minds of those for whom the earlier evidence was insufficient, the possibility of the occasional propagation of syphilis by vaccinating from infants in whom that disease is active. This being so, it is of the highest importance to prevent the repugnance to vaccination already existing from being strengthened unreasonably by these unfortunate occurrences, which, even at their worst, must be of extreme rarity—rarity so great that, in North Germany, more than twelve millions of vaccinations have only furnished two or three examples (*Auspitz, Wiener Med. Wochenschrift*, January 25, 1873). And when an official inquiry into the effects of vaccination was made in 1856, no English practitioner of repute was able to report a single instance.

"The facts of the present cases are as follow:—

"1. *The patient*, a male, aged forty-six, applied to Mr. Hutchinson, at Moorfields Ophthalmic Hospital, for relief from iritis. Examination disclosed the existence of dusky-red rash and symmetrical ulcers on the tonsils, but no trace of disease on the genitals. On one arm, however, were two or three scabbed ulcers as large as shillings, with dusky-red indurated borders, and there was indolent bubo in the corresponding axilla. He had been vaccinated three months before he applied to this hospital. The punctures took, and behaved as usual, but a month after the vaccination, when just healed over, they broke out again. About six weeks after vaccination a rash is said to have appeared, and the iritis at two months after it. The symptoms disappeared while mercury was taken. Besides the patient, about twelve others were vaccinated from the same child. In three, the patient's children, young adults, no ill results were observed. Of the remainder, nothing precise was known.

"*The vaccinifer.*—The vaccinator reported that this child appeared to be in excellent health at the time. When seen by Mr. Hutchinson it was eight months old, was fat and well grown; it was the third of the family; its predecessors had died in infancy. It had a markedly sunken bridge to its nose. This comprised the evidence of syphilis in the child.

"2. A lady, aged forty-five, came under Mr. Hutchinson's care in December, 1872, for a non-syphilitic affection, but having also copious remains of a syphilitic rash. On interrogation, she narrated that she had been vaccinated in May, 1871, by four punctures, none of which took; just a month later one inflamed, and became a hard-edged ulcer, lasting three months. About two months after vaccination the rash appeared, and she fell into ill health. Until September, 1871, no specific treatment was adopted. It was continued nine months, and then dropped. Two months later the left eye inflamed, and the rash relapsed. The iritis was treated at Moorfields, and several months afterwards the patient came under Mr. Hutchinson's care for the first time. In addition to the remains of eruption, synechiaæ in the left eye, and a dusky scar at the site of one of the vaccination punctures were found. The patient was vaccinated from a baby's arm along with her two grown-up daughters. A number of other persons had been vaccinated previously from this child, but these had not been traced. The daughters escaped contagion.

"*The vaccinifer.*—The baby and its mother were said to have looked quite well at the vaccination; but, when dentition began, the child had sores about the anus that lasted three months. It was the third child; the first two were living.

The eldest, aged six, showed no sign of inherited taint; the second, aged five, had a large forehead, and, at her dentition, had exactly the same sores at the anus as had the vaccinifer. When Mr. Hutchinson saw the vaccinifer, the symptom attributable to syphilis was a large forehead.

"What are the conclusions to be drawn from these facts? First, there can be no doubt but that both patients had syphilis, contracted about the time when they were vaccinated. In the first case, the proof is satisfactory that the point of vaccination was identical with that of inoculation, the state of the point of inoculation having been seen by Mr. Hutchinson while in a characteristic condition. In the second case, the evidence is less irrefragable. There is only the patient's narrative of her symptoms for a history of the early stages of her disease, and a year and a half had elapsed before she came under the reporter's observation. Mr. G. G. Gascoyen, criticizing this part of the evidence, remarks that it is not impossible that the vaccination simply roused into activity the syphilitic poison already contained in her body. Indeed, the evidence to show that syphilis entered at the point of vaccination is scant.

"Next comes the question, whether the vaccinifers had syphilis themselves. Here the evidence is less satisfactory than that reported two years ago. The appearance of the infants when employed as sources of lymph caused no suspicion; but it is not stated that a medical examination was made to ascertain their condition before using them, and when the hitherto unsuspected infants were examined, no symptoms pathognomonic of syphilis, and very few of any kind that could be attributed to that disease, were found. While pointing out the small amount of evidence to establish the presence of syphilis in the vaccinifers, it must not be forgotten that great difficulty must always exist in such investigations; for naturally, children who readily betray their syphilis would be rejected.

"But let it be granted that both these cases may be added to the list of instances of vaccino-syphilis, the practical object is really to prevent their recurrence while extending the practice of vaccination. By simply demonstrating its possibility, even though as a rare clinical phenomenon, a great step is made. The great majority of vaccinators, not believing it possible, took no special precautions against it. Now, on the contrary, they will take pains to satisfy their minds that syphilis is not present in their vaccinifers; all other precautions being of small value. For example, the continued discussion as to whether the vaccine lymph *per se* can communicate syphilis, though clinically interesting, is of minor consequence practically; no one would knowingly use a tainted infant as the source of his vaccine. Such evidence, indeed, as we possess, is entirely against the probability of the lymph itself being the vehicle of syphilis. In our uncertainty, the blood, or the serous part of the blood exuding into the vesicle when that is partly evacuated, or some adhering cells, have been suggested as the vehicle. It is an important clinical fact, that in every instance of vaccino-syphilis, other persons vaccinated from the same infant have had ordinary vaccinia but no syphilis. But the suggestions for its explanation are at present little more than pure conjecture. As has been pointed out, not a particle of testimony has been adduced to show that the vaccine lymph can convey syphilis. But that is not the present question: it is, can or cannot syphilis be detected in all persons who possess the power of imparting it to others? The tone of the discussion implied that it is impossible to do so, indeed, this was so stated by Mr. Hutchinson: and acting on this conclusion, precautions were proposed which, it is observed, would in practice seriously diminish the prophylactic power of vaccination against smallpox. For example, it was recommended that lymph should not be taken from children less than three months old—in fact, six months was mentioned; from children whose parents were not known to the vaccinator, or who were the first-born of a family; that government should increase the facilities for vaccinating from the heifer, etc. There is fortunately little evidence to show such stringent precautions are necessary. Proof is very small that children in whom the presence of syphilis cannot be ascertained by careful examination to exist, can communicate their disease; while there is much to show that syphilis is contagious only when processes are at work which betray its presence. Even

the blood has been successfully inoculated only when taken while its owner was clearly suffering from the disease in full progress, and not always then. For practical purposes, in the present state of our knowledge, we are justified in adopting the summary of the *Lancet*, of the conditions that must be *simultaneously* present for the contagion of syphilis by vaccination: (1) a syphilitic vaccinifer, (2) an active condition of the syphilitic element in the vaccinifer's blood; but at the same time (3) the absence of such obvious external symptoms as would deter any commonly upright surgeon from using the subject of them as a vaccinifer; and, it also adds, (4) the gross imprudence of using the serum or blood escaping after the first evacuation of the vesicle. These conditions, which need never be present together if ordinary care be exercised, must be coexistent to propagate syphilis, and they keep widely clear of that which, there is strong reason to believe, is the essential condition for contagion, namely, syphilis in active and demonstrable progress."

18. *Syphilitic Disease of the Arteries.*—At the last meeting of the Society of German Naturalists and Physicians, Dr. HEUBNER exhibited some preparations, illustrative of syphilitic disease of the arteries. The preparations were taken from a man who died in the Leipzig hospital, after having been under observation during a year. He had been syphilitic nine years when, in 1869, he had a sudden attack of loss of consciousness, which lasted five days, with occasional convulsions. After this, his vision gradually failed, first in the left eye, and then in the right; so that, when he was admitted into hospital in February, 1870, he was nearly blind. During his stay in hospital, he had several attacks of unconsciousness, sometimes attended with epileptiform convulsions. At the necropsy, there was found to be syphilitic infiltration at the base of the brain. One deposit corresponded to the anterior part of the pons; another was seated at the posterior part of the chiasma, and extended along the optic nerves; and a third was at the base of the anterior part of the left frontal lobe. The basilar and left carotid arteries were closely adherent to the deposits. Their external coat was thickly infiltrated with small nuclei. Unconnected with this, there was a deposit on the inner coat, closely resembling, but, as far as could be ascertained, not identical with, atheroma, reducing the calibre of the vessels; and a few nuclei like those on the outer tunic and in the deposits lay here and there in the muscular coat. Similar changes in the lining membrane were found also in much smaller arteries than the basilar and carotid; the arteria centralis retinae was found affected in this way.—*Brit. Med. Journal*, Dec. 7, 1872.

19. *Pathology and Therapeutics of Variola.*—Dr. W. ZUELZER, Medical Superintendent of the Charité Hospital, in a paper in the *Berliner Klinische Wochenschrift*, No. 51, 1872, draws special attention to cases of severe hemorrhagic smallpox. He considers them to be quite distinct from those cases in which hemorrhage comes on after the usual eruption. From July 1, 1871, to April 30, 1872, out of 326 patients admitted into the Charité wards for smallpox, there were 35 cases of the hemorrhagic form. Those patients were generally stout, well-nourished men; under comparatively favourable conditions of life. Two of them were of athletic build, and with one solitary exception all belonged to the better class of workmen and artisans, or their families. There were 19 men and 16 women, and their ages were as follows: 16 to 20, 2 males, 1 female; 21 to 30, 9 males, 8 females; 31 to 40, 6 males, 3 females; 41 to 45, 2 females; 61 to 70, 1 male, 2 females; of unknown age, 1 male; in all, 19 males and 16 females. Only seven were considered to be intemperate, and only eleven admitted having had any severe disease, such as typhoid fever or pneumonia. While the ordinary period of incubation is from twelve to fourteen days, in this hemorrhagic form it seems considerably less. At least, in nine patients who could give a trustworthy account, the longest time was six to eight days. The attack began more or less suddenly with rigors, and then the accustomed prodromata of variola followed—violent pains in the back and head, severe vomiting, and vertigo. Great prostration, articular pains, and loss of sleep (persisting till death) ensued. The fever was generally mild, and

in six cases only did the temperature exceed  $40^{\circ}$  C. ( $104^{\circ}$  F.) Throat-symptoms, and a general scarlet efflorescence, led to the suspicion of scarlet fever in many of the cases. But the hemorrhagic tendencies of the attack soon became manifest. There was enormous swelling of the skin, especially of the face and eyelids. This, with chemosis, and the almost tetanic closure of the swollen lids, gave the patient a truly horrible expression. The reddened skin grew darker and darker, often violet in hue, at least bluish-gray, or blackish, particularly in the face. Dark red maculæ and petechiæ appeared, not rising above the level of the skin around. More rarely there were papules, which became vesicular, often depressed rather than elevated, and filled with blood or blood-stained serum. The mucous membranes, wherever visible, showed similar appearances. On the fourth or fifth day, generally, profuse bleedings took place from the nose, urethra, female genitals, rectum, lungs, and sometimes stomach, and lasted till death in most cases, in spite of treatment. The temperature often became subnormal in consequence. The heart and pulse were less affected by the hemorrhages. The cardiac impulse was strong and heaving; the heart-sounds were loud and clicking; the pulse less frequent, full, and hard. The arterial walls were very resistant and greatly thickened. The veins, as seen in transfusion, were unequally filled, but their walls were so rigid that the wounds made in the operation remained gaping widely; and the veins were so brittle that it was difficult to avoid rupturing them. Every incision was followed by profuse hemorrhages. The patients complained of breast-pang, extending down the left arm, like angina pectoris. The respiration was of the type described by Cheyne and Stokes, viz., interrupted by long pauses, each followed by a number of shallow inspirations, gradually deepening to dyspnœa, then becoming shallower; after which the pause ensued. Pneumonia or pleurisy often set in towards death. There was anæsthesia of larger or smaller tracts of skin, so that the prick of a pin would not be felt, whilst other regions were intensely hyperæsthetic. There were also abnormal forms of paralysis in one or both the upper or lower limbs, sometimes in both upper and lower; also deafness and amaurosis. The intellect was generally clear to the very last, although coma supervened in several cases a few hours before death. There was more or less dysphagia; also intense diphtheria and gangrene, with horrible fetor, in the throat and in the female genitals. The voice was hoarse and whispering; the bowels were usually constipated, and the patients had retention or incontinence of urine. All the patients had been vaccinated, but not one had been revaccinated. All the cases died. Of twenty-six, one died on the third day, three on the fourth, three on the fifth, eleven on the sixth, eight on the seventh day. Post-mortem examinations showed extensive hemorrhages in and under the skin, in connective tissues, in mucous and serous membranes, in the lungs and intestines (although the lower part of the ileum escaped), in the male and female genitals, in the heart and other muscles, and in fibrous tissues; but not much in the liver, spleen, brain, or spinal cord. All the large nerves had hemorrhages in and around their sheaths, especially the cervical part of the vagus (accounting for the cardiac symptoms), the sciatic, brachial plexus, etc.

Many have doubted the identity of the pustular and hemorrhagic forms, but the latter occurs almost solely in epidemics of the former. Two of the Charité cases of hemorrhagic smallpox generated the common variety, and there were also instances of the converse. Besides this, there are transitional or intermediate types. With regard to the pathology of the eruption, Dr. Zuelzer does not believe that the pustules follow any definite nerve-tracks, nor does he believe that any special chemical product is the poison of variola.

For a long period certain definite forms have been discovered in the pustules (and latterly in the bloodvessels), which appear to be constantly present, and to have a definite relation to the morbid processes. Gluge, in 1838, made the first observations. Keber, in 1868, and Klebs about the same time, observed in the fluid parts of the pustules, besides pus-corpuscles, "fine, brilliant, granular bodies, end to end, like a necklace," which were held to be of vegetable nature, and E. Wagner soon afterwards found, in the transition stage from vesicle to pustule, that "the upper part of the cavity is generally filled with a

brownish, coarse, or medium-sized granular substance." Erismann found in the corium, especially in the hair-follicles, and in the pustules, numerous bodies which were tinged far more by carmine than the nuclei of the epidermic cells. Weigert, even before this, pronounced them to be bacteria. Cohn (*Virchow's Archiv*, 1872, vol. lv. p. 229) has rendered their identity with bacteria quite certain. Eidam and Lövinson (*Der gegenwärtige Standpunkt der Mycologie*, 1872) also concur. The author has made numerous experiments in Dr. Cohn's laboratory. In fresh lymph they appear as very numerous, extraordinarily minute, bullet-shaped, colourless bodies, showing no spontaneous movements, only molecular ones. They are unaffected by glycerine, acetic acid, ether, and ten per cent. potash solution, and are thus distinguished from *débris*, free nuclei, fat-granules, and the like. At a temperature of about 35° C. (95° F.) they multiply on the glass slide, by fission or evolution, to rosary-like chains of two, four, or more parts. These form irregular groupings, and by continued or advanced development and reproduction form cell-colonies, or are united by a slimy intercellular substances into masses like zoogloëa. The constant occurrence of these bacteria in variola can no longer be doubted. On examining the thickened arterial walls of such arteries as the radials, in cases of hemorrhagic smallpox, with a high power (Gundlach's 6 and 7) and reagents, Dr. Zuelzer found the muscular coat greatly thickened and studded with these masses, easily distinguishable from its own nuclei; and the dilated tube often filled with them. He also found them in the uriniferous tubes and Malpighian corpuscles of the kidney. In the neighbourhood of hemorrhages, the tributary vessels were found blocked with embola, composed of these bacteria. The results of inoculations with filtered lymph correspond with these observations.

As regards treatment, the author has found no benefit from so-called specifics (*sarracenia purpurea*, and the like). Cold-water treatment was of only transient use. Styptics, as perchloride of iron, turpentine, ergot, and tannin, were tried in the hemorrhagic form without any good results. Transfusion in three cases of his, and one of Uhde's in Brunswick, also turned out badly. The parasitic theory led to the trial of quinia, salts of picric acid, and carbolic acid (externally) without avail. The parasites have immense powers of resistance. Experiments with lymph show that they resist strong solutions of salt, acetic acid, soda and potash solutions, and even carbolic acid. Melsens and Horvath (of Kiew) have shown that vaccine lymph resists great cold, and that the bacteria in vaccine only cease to show vital properties by long exposure to temperatures over 56° C. (132.8° F.) and under 16° C. (32° F.). But Zuelzer thinks the process of desiccation can be hastened, the skin protected, and the risk to life and beauty much diminished in pustular smallpox, by the use of bodies of the benzol series—all of which are aromatic and diffusible, and coagulate albumen. Schultzen and Naunyn have already published researches on them. The author has experimented on benzol, toluol, and xylol. Benzol was badly tolerated; it was too diffusible, and too quickly eliminated by the lungs. In the choice between toluol and xylol he was determined to the use of the latter, because the toluic acid formed by it was not easily decomposed, and it did not induce nephritis even in large doses. He gave xylol in doses of 10, 15, and 20 drops in wine or water. Afterwards he adopted Burkhardt's formula to hide the taste: purified xylol, 4, 5, or 6 parts; fennel water and sherry wine, of each, 50 parts; mucilage, 10 parts; simple syrup, 40 parts; and 3 drops of peppermint oil. A tablespoonful of this is given every one or two hours. The odour is very soon perceived in the breath. Its most visible and practical effect is the coagulation of the contents of the pustules, which then seldom burst, but dry up, forming thick scabs, which adhere till cicatrization is complete. The results of prolonged suppuration are thus avoided, or much diminished, as well as the horrible fetor of the scabs. The effect on temperature is slight (about nine-tenths of a degree, Fahr.) in healthy individuals with moderate doses. Xylol is well borne and willingly taken. Very large doses may cause vomiting, but it usually stops fermentation in the stomach. Large doses induce transient vertigo and cutaneous anaesthesia. No other drugs were combined with it. Pure xylol is a clear, transparent, highly refractive

fluid, with a boiling point of  $139^{\circ}$  C. ( $282.2^{\circ}$  F.), and has a peculiar aromatic taste and smell.—*London Medical Record*, Jan. 29, 1873.

20. *Smallpox: Injection, Incubation, and Primary Stage.*—It is stated by OBERMEIER, that, in a number of cases of smallpox, in which it was ascertained that the patients had been only once in contact with those affected with that disease, the medium period of incubation was found to be eleven days, which very nearly corresponds with preceding observations. In respect to this question it was ascertained, from the study of another series of cases in which more frequent contact with infected subjects had taken place, that the variolous infection is only communicable after the appearance of the eruption upon the skin, and not earlier, during the prodromal period. From observations made in four other cases it would seem probable that soon after the complete drying of the pustules, even when but few crusts remain upon the skin, infection may be still communicated. Patients, who have had the smallpox, should not be permitted to go at large until every portion of the surface of their bodies is perfectly clean. The incubation period of smallpox is passed through without symptoms; towards its close, however, symptoms of laryngeal catarrh are often developed. The intensity of the disease O. denies to be in proportion to the length of the incubative, prodromal, or primary stage. It has been proved that a long continuance of the latter has been in many cases succeeded by an eruption of little intensity.—*Centralblatt f. d. Med. Wissenschaften*, No. 31, from *Virchow's Archiv*, LIV.

D. F. C.

21. *Congenital Aphasia.*—Dr. L. WALDENBURG communicates a very remarkable and important case of what he believes to be congenital aphasia. The subject of the affection was a boy six years of age, whose mother, when three months pregnant, was seized with right hemiplegia and entire loss of speech. She improved slowly, but six years afterwards, when first seen by Dr. Waldenburg, there remained a certain weakness in the right extremities, and her speech was not only somewhat thick, but she had difficulty in expressing herself properly. Her pregnancy had gone on to full time, and the child was born naturally. Shortly after birth, the parents observed in the child partial paralysis and wasting of the right side of the body. In the course of the first year the paralysis became less marked, but still that of the right leg was very observable. With these exceptions the child enjoyed good health. But as it grew older, and up to six years, his present age, the child had given little evidence of speech, and the few words it was alleged to be able to articulate were incorrectly used and pronounced badly. He was not deaf, and was quite intelligent; slight difficulty of swallowing was occasionally observed. Such was the history given by the parents.

When seen by Dr. Waldenburg, the child was perfectly intelligent-looking. The muscles of the right lower extremity were less developed than those of the left, and it was two or three centimetres shorter. There was no affection of the joints. The limb was partially paralyzed. The grasp of the right hand was less powerful than that of the left. The child could not speak at all, or imitate any articulate sound. He opened the mouth and gave the hand when desired. There was no question of deaf-muteness, no signs of imperfect intelligence, and no abnormal construction of the head. Inspection of the oral cavity gave the following results. There was a doubtful difficulty in closing the lips. The tongue could not be protruded beyond the lips, from shortness of the frænum. There was no definite deviation of the tongue. The velum palati and uvula when the child cried, deviated somewhat from the right below to the left above. There was paresis of the palate of the right side. The pharynx and larynx appeared to be perfectly normal. The examination of the oral cavity and larynx, therefore, was negative in affording an explanation of the absence of speech. The child, with only slight interference with the motion of the tongue, did not even try to bring forth articulate sounds. Dr. Waldenburg thinks, therefore, that the case is one of aphasia, disease of the centre of speech, and, with the condition of the right extremities and the right half of the velum, an affection of the left hemisphere. He believes the condition to be congenital, caused by an

intra-uterine affection. If the history of the case be correct, and he has no reason to doubt it, he thinks that the theory that both cerebral hemispheres are capable of educated speech is disproved. Here the left hemisphere was affected before the child arrived at the natural age for commencing to speak, but the right or healthy hemisphere did not meet the want.—*Lond. Med. Record*, Feb. 19, 1873, from *Berliner Klinische Wochenschrift*, No. 1, 1873.

22. *On Endocarditis and Embolism.*—SPERLING (*Inaugural Dissertation*, Berlin, 1872) analyzes 300 cases of endocarditis examined *post-mortem* in the Pathological Institute of Berlin during three years, and groups these according to the side of the heart, the valve, or the combination of valves, affected. In regard to embolism, it was found in 29 per cent. of the cases of pure endocarditis; in 26 per cent. the left side was affected, and the right in 2-3 per cent., the lungs being the seat of deposit in the latter cases without exception. In the cases due to endocarditis of the left ventricle, the mitral valves were diseased in 88 per cent., the aortic in 49 per cent.

Contrary to usual acceptance, the kidney was found most often affected with embolism—75 per cent., the spleen being less frequently so—51 per cent.; the brain, 20 per cent.; the liver and intestine, 7 per cent.; the skin, 5 per cent.; the bone-marrow, 3 per cent., and, lastly, the salivary glands and the inner coats of the eye.—*London Medical Record*, Jan. 8, 1873.

23. *Extreme Contraction of the Tricuspid and Mitral Orifices unattended by Presystolic Murmur.*—Dr. CRYAN exhibited to the Dublin Pathological Society (April 20th, 1872) the heart of a woman, æt. 27, presenting these pathological lesions, and read an account of the case.

Dr. C. stated that he thought this case justified him in drawing the following conclusions:—

1. That the extreme contraction of *both* auriculo-ventricular orifices may be present in the same patient, and yet be unattended during life by any presystolic murmur.
2. That as the impulse and contractions of the heart continued strong and vigorous for twelve days, out of the fifteen that the case was under observation in hospital, the absence of presystolic murmur during that time must be ascribed—at least in the case of the mitral orifice—to some other cause than mere weakness of the auricular contractions.
3. That as the mitral orifice was found, at the autopsy, not to be smooth, the absence of presystolic murmur in this case was probably due to the smallness of the blood-current transmitted through the greatly contracted auriculo-ventricular opening.
4. That when in mitral regurgitation, of long-standing, the apex beat is not displaced *downwards*, and the other signs of dilated and hypertrophied *left* ventricle are absent—the pulse at the wrist being very small and weak, while the impulse of the hypertrophied right ventricle continues strong—we may, even in the absence of presystolic bruit, infer, with much probability, that there is also considerable *contraction* of the mitral orifice.—*Dublin Journ. Med. Sci.*, Jan. 1873.

24. *Bronchial Hemorrhage as a Cause of Pulmonary Phthisis.*—M. TEISSIER brings forward some cases in support of the view that broncho-pulmonary hemorrhage may be an occasional cause of pulmonary phthisis. In the earlier part of the paper, the author alludes to what has been stated by other observers (Trousseau, Bricheteau, Graves, Jaccoud, Bouchard, and Niemeyer), in favour of this mode of origin of the disease. In quoting Niemeyer, he advances the teaching of this pathologist, that the irritation of the lung or bronchial mucous membrane by foreign bodies is an occasional cause of phthisis; and that of these foreign bodies coagulated blood is the most frequent; further, that in those cases in which very acute phthisis immediately follows an attack of pulmonary hemorrhage in persons previously healthy, the inflammatory disorganization of the lungs is determined by the presence of the coagulated blood.

In stating his own views, M. Teissier says that bronchial hemorrhage is ac-

companied or followed by active hyperæmia, which is capable of giving rise to caseous pneumonia, or even to tuberculosis, in persons *predisposed to phthisis*. Whilst admitting that bronchial hemorrhage is much more frequently a consequence than a cause of phthisis, and that it may occur in individuals otherwise healthy without producing any results, he maintains that in comparatively rare cases it undoubtedly plays an important part in the causation of this disease in debilitated or scrofulous persons, or in those in whom there exists the least tuberculous tendency.

The experiments of MM. Perl and Lipmann, which show that blood injected into the trachea of dogs and rabbits produces no other results than a slight amount of local emphysema and pigmentation of the epithelium, are, according to M. Teissier, no evidence that bronchial hemorrhage is incapable of inducing phthisis in man; inasmuch as in the latter there is presumably some disease of the bronchial or pulmonary bloodvessels, which is in itself a condition tending to produce more or less permanent congestion. No anatomical evidence, however, is adduced in proof of the existence of any vascular change.

In speaking of the results of his own clinical experience, the author states that he has met with cases in which haemoptysis appeared to be the precursor and determining cause of phthisis. He gives an account of three cases.

The first case is that of a man aged 40, who was the subject of haemophilia. He had from time to time attacks of haemoptysis, and in the course of two years he presented the physical signs of phthisis. The disease terminated fatally.

The second case is that of a healthy man, aged 45, in whom profuse haemoptysis occurred whilst he was travelling in the mountains of Auvergne. The hemorrhage lasted for a few hours, and he soon regained his usual health. Two years later, the haemoptysis returned and continued at intervals for about three weeks, and shortly afterwards physical signs of pulmonary consolidation were for the first time discovered. Death ensued in three months.

The last case, which is the most conclusive, is one in which pulmonary hemorrhage caused by external violence terminated in phthisis. A robust and perfectly healthy man, aged 33, was injured on the right shoulder by the fall of a tree. He was simply bruised; there was no fracture or dislocation. The injury was immediately followed by very profuse haemoptysis, and he continued to spit blood more or less for eighteen months. He then began to suffer from dyspnoea, cough, and expectoration; and a physical examination of the chest discovered commencing disease at the apex of the right lung. The signs of pulmonary disorganization gradually increased.

The author concludes by again stating that it is only in those in whom there exists some predisposition to phthisis, that hemorrhage can determine the disease; and adds that, even when haemoptysis is a consequence of phthisis, the presence of the blood often greatly aggravates the disease, and tends to hasten a fatal termination.—*London Med. Record*, Feb. 5, from *Lyon Médical*, Jan. 5, 1873.

25. *The Thermometer as a Means of Diagnosis in Cases of Uræmia*.—M. HANOT recently presented to the *Société de Biologie* the notes of a case in which death occurred through uræmia in a patient affected with general paralysis. The uræmic symptoms were produced by pressure of an enlarged carcinomatous uterus on the ureters, and consisted chiefly of a sort of coma and stertorous breathing. The diagnosis was rapidly made out, and the case distinguished from cerebral hemorrhage and softening by means of the rule set down by Dr. Bourneville of considerable fall of temperature in uræmia. In this instance the thermometer showed 34° at the outset of the symptoms, the following morning 30°, and at the time of death only 20°.—*Lancet*, Jan. 4, 1873.

26. *Condition of the Liver in Females during Lactation*.—M. L. DE SINETZ communicated to the Academy of Sciences (23d Dec. 1872) some investigations he has made on this subject in the laboratory of medicine and histology of the College of France. His experiments and observations have been made on dogs, rabbits, hares, and women.

He concludes from his observations that

1st. There is a fatty state of the liver, independent of gestation, which is developed simultaneously with the occurrence of lactation, continues during the whole duration of the latter, and ceases with it.

2d. That the situation of the fat in the lobules of the liver, in females during lactation, is entirely different from that met with in all other fatty conditions of the liver.—*Gazette Hebdomadaire*, Jan. 3, 1873.

27. *On the Treatment in Extremis of Acute Cases of Fibrinous Deposition in the Heart.*—Dr. B. W. RICHARDSON read a very instructive and interesting paper on this subject before the Medical Society of London. He stated that when, twenty-two years ago, he revived the subject of the nature, diagnosis, and treatment of fibrinous depositions in the heart during life, he met with two classes of objectors in the course of the debate. One esteemed Fellow of the Society, taxing his labours as visionary, had asked the severe question, whether had the paper been before the committee of reference? Another equally esteemed Fellow had said that, if the facts were as had been stated, they served but to raise up a hopeless knowledge for medical men. Therefore, *cui bono?*

By repeated experiment, Dr. Richardson had demonstrated that fibrine does in some cases separate in the heart during life; while, from clinical observation, he had been able to point out the symptoms indicating the fact of such separation. The second objection had been met with infinitely more difficulty; and he had not, though many years had passed, ventured to speak of it with the hope of removing it. He had year after year seen cases *in extremis* where death was clearly the result of fibrinous separation, and he had discovered no opportunity of affording distinct service. At last this distressing state of doubt was passing away, and he might venture to speak of some method of approach towards success. He next referred to the exceeding mortality of the cases which he had seen. They included cases of croup in children; of pneumonia; of peritonitis; of ovarian operation; of parturient cases before and after labour, and with and without phlegmasia; of erysipelas; of scarlet fever; and some obscure cases in which nothing was proclaimed until the appearance of the fatal symptoms, except what was called cold or febricula, or remittent feverishness. After describing cases in detail, he stated that in his experience recovery after fibrinous deposition had become actually developed did not occur in more than three per cent. Of all classes of disease, croup, he believed, yielded the largest number of examples; after that, diphtheria; and after that, the puerperal condition and peritonitis. He placed before the Society, in a revised form, the special points of diagnosis of fibrinous separation as occurring (a) on the right side, (b) on the left side of the heart; he then noticed anew the condition favouring deposition. Under this head especially he named increased local heat of parts, involving large veins as of extreme importance. For example, erysipelas, involving the skin over the lower extremities, was exceedingly dangerous. He was of opinion that the local increase of heat was in such cases sometimes the only just cause of danger. The increased temperature of blood in the veins acted on minute portions of fibrine, and the semi-solid little masses of fibrine formed were carried into the heart, to become nuclei or centres for the larger separations. More speedy, or sudden, general or systemic increase of heat, as in certain cases of apoplexy, led to separation in the larger vessels and in the heart itself.

The greater portion of the paper was devoted to the subject of treatment in cases of fibrinous deposit, and specially in cases *in extremis*. As soon as the symptoms of deposition had become developed, all influences that had a depressing effect upon the heart ought to be instantly withdrawn. Mental influences telling upon the emotions should be avoided. Sometimes the great distress exhibited by the sufferers—the distress of the dyspnœa particularly—tempted the practitioner to give opium. The practice was fatal, and could only be defended on the doubtful ground that all treatment was useless except to secure euthanasia. In cases of croup, it was often a question whether tracheotomy ought to be performed to relieve dyspnœa; it being uncertain whence the dyspnœa proceeded, whether from obstructed respiration or obstructed circulation. In such instances the diagnosis was simple; and, when

it was clear that the dyspnoea was cardiac, the operation was useless, and was better avoided. But in mixed cases, or in cases of doubt, Dr. Richardson was inclined to give the patient the benefit of the operation. In purely defined instances of fibrinous separation, the practitioner, having determined what should not be done, had to settle the question, What shall be done? The first element of treatment, especially where the separation was on the right side, was to give absolute rest of the body in the recumbent position, for the heart working under embarrassment could bear no undue fatigue, and at the same time every active motion increased the danger of loosening the fibrinous mass, and of allowing it to float into the pulmonary artery. Rest secured, there should be given as much food as the stomach would bear without distension from flatus; milk, rendered slightly alkaline by lime-water, and charged with a little Liebig's extract of meat, being on the whole the best food. The body, if cooling, should be kept warm by external dry applications. Sand-bags were the best when they could be easily procured; and the temperature of the air should be sustained at 60 deg. Fahr., or even 70 deg.; the air, also, being kept dry. As to internal remedies, the author had first inclined to the free administration of alkaline solutions, especially ammonia; but in a case in which, several years ago, he carried out this treatment, using the bicarbonate of ammonia, and which terminated fatally after several days, although the concretion was found to have greatly softened and broken up, the blood was reduced to such an extreme solubility, and the corpuscles so extensively destroyed, that he had found the remedy as serious as the malady. He had suggested the injection of ammonia by the veins in these cases, but had held back for the reason stated above from following out the idea. He had tried inhalation of ammonia, but without sufficient success to warrant enforcing the plan. Lately, seeing the all but invariable fatality that followed the fact of depression, he returned to the use of ammonia as a remedy, by administering it in large and repeated doses, in combination with iodide of potassium; using, not as before, a salt of ammonia, but the liquor ammoniae of the *Pharmacopœia*. To an adult he had administered ten-minim doses of the liquor ammoniae in ice-water, every hour, with from three- to five-grain doses of the potassium iodide every alternate hour. This treatment had been followed by a degree of success which he had never anticipated. Nothing could be more remarkable than the fact of the quantity of ammonia that could thus be administered without danger, except the fact of the degree of fluidity of blood and of blood-corpuscles that could be recovered from. In proof of this, he detailed two cases in which this treatment had been followed out with the effect of entirely relieving the heart when death seemed all but certain. One of these cases had ended in slow but entire recovery, and the other had now progressed favourably for nine weeks.

The addition of alcohol to the treatment in the management of these cases was then discussed. The direct effect of alcohol in these cases was unfavourable when taken alone, but with ammonia it might be given with advantage whenever the heart was commencing to fail in action. The solution of ammonia in alcohol might then be substituted for the aqueous solution, or brandy might be given in half-ounce doses every hour. Alcohol, however, was only to be held in reserve as an adjunct rather than a remedy. The course of the symptoms during recovery, the dangers that appeared, the changes of blood, and the risk of secondary pathological modifications in remote organs, and especially in the spleen, were described and subjected to practical comment. In conclusion, the author stated that prognosis was much more favourable when fibrine had separated on the left than on the right side of the heart; the breaking away of the fibrinous mass on the left side being followed sometimes by immediate relief to the heart, and by ultimate recovery. He mentioned a case where he had been summoned from town to attend, and he left the patient apparently *in articulo mortis*, and he was only able to comfort the friends with the hope that the concretion might possibly break away and the heart become relieved. Shortly after he had gone, the event thus hoped for actually occurred; the semi-conscious patient was almost immediately relieved, and, except for some temporary numbness of the lower extremities (for the concretion was carried into the abdominal aorta), recovery was complete without an unfavour-

able symptom. Although a much larger experience was demanded to improve the work he had set forth, Dr. Richardson felt, nevertheless, that a distinct advance had been foreshadowed for a class of cases hitherto considered hopeless. He thus felt it his simple duty to lay this communication—instalment, as it was, and nothing more—before his fellow-practitioners of the healing art.—*Brit. Med. Journal*, Dec. 14, 1872.

28. *Treatment of Acute Rheumatism by Propylamine and Trymethylamine.*

—Propylamine was first employed by Awenarius, of St. Petersburg (*Journal de Physique et de Chimie*, 3e serie, t. xxv., 1859), with success in more than 250 more or less complicated cases of acute rheumatism. Upon his recommendation Dr. Gaston (*Medical Press and Circular*, 1872) used this remedy, and asserts that it will produce decided improvement even in severe cases in thirty-six or forty-eight hours. Dr. Gaston, however, employed quinia with propylamine. M. Dujardin-Beaumetz (*L'Union Médicale*, Jan. 16, 1873) reports seven cases, six of acute and one of chronic rheumatism, treated with propylamine alone. Six of these cases recovered between the third and tenth day of treatment. In very acute cases, where the remedy was employed at the commencement of the attack, the results were remarkably rapid. In twenty-four to forty-eight hours at most the pain disappears, then the redness and swelling diminish, and at the same time the fever declines; relapses are slight and of short duration. From these few cases (some of which had cardiac disease at the time of their admission into hospital), he is unable to speak of the influence of propylamine on the heart complications. He commences with a dose of 0.5 grammie, increasing to 1 grammie, and even to 1.5 grammes. This dose does not disturb the stomach. Dr. A. Besnier reports six cases of rheumatism treated in this way with decided success.—*London Med. Record*, Jan. 29, 1873.

29. *Blister-treatment of Rheumatism.*—Dr. THOMAS B. PEACOCK, Senior Physician to St. Thomas's Hospital, states (*Brit. Med. Journ.*, Jan. 18th, 1873), that he has employed this treatment regularly since 1865. At first he used it only tentatively, “one, two, or three blisters being applied at the same time or in succession, and in conjunction with other remedial means, and the general impression which I formed was not very favourable. Subsequently, I was induced to apply the blisters much more freely, three or four, or even six, at a time, and in rapid succession a still larger number, and I have been led to form a high opinion of their usefulness when thus used, and to confirm what has been said in favour of the treatment by Dr. Davies. The blisters are generally two or three inches wide, and sufficiently long to encircle the limb. They are placed above the chief joints that are affected, and are usually put on in the after part of the day; in the morning, or when they have risen sufficiently, the serum is let out and the surfaces are covered with warm linseed-meal poultices, and these are continued for several days. The treatment has been objected to as unnecessarily severe and attended with much suffering to the patient, but this is not correct. I scarcely remember an instance in which the patient, though specially questioned on the subject, has found fault with the treatment; and I have often heard them say that the pain caused by the blister is not to be compared with that of the rheumatism. Nor have I ever seen any serious inconvenience of any other kind caused by the blisters. Sometimes, however, there is a temporary increase of suffering when the blisters begin to draw, and the temperature rises and the patients are restless at night; but generally there is very marked amendment in the morning, both the swelling, tenderness, and pain being reduced, and the constitutional disturbance relieved. In some cases, however, the local symptoms may not be immediately benefited to any marked degree, and the blisters must be repeated, being applied above to the seat of the first vesication; or, after a few days' cessation, the same joint may be again affected, and in this case too the blistering must be repeated. The occurrence of second attacks in the joints first affected is not, however, by any means confined to cases treated by blisters, but equally occurs when constitutional means have been had recourse to.

"Generally with the local means, constitutional remedies, especially the bicarbonate and nitrate or tartrate of potash are given more or less freely according to the severity of the symptoms. The cases in which I have employed the blister-treatment are the following :—

"First, when several joints are coincidently and severely affected, the sufferings of the patient are great, the constitutional disturbance severe, and the temperature high ; in cases of this kind, three, four, or even six or more blisters are applied immediately the patient is seen, and as many more may be put on in the course of a few days in rapid succession as other joints are involved, or when those first blistered are not materially relieved or again become affected. From this treatment I have seen the most satisfactory results, both the local and general symptoms being greatly relieved by the free blistering, and the duration of the disease being curtailed. It is evident also that, if the active stage of the disease be shortened, as this is the period during which the internal complications are most apt to occur, the frequency of such complications will be lessened. It is in cases of this kind that the blister-treatment is most efficacious, the benefit obtained being apparently directly proportionate to the number of joints coincidently affected, to the severity of the local symptoms, and to the freedom with which the blisters are applied to the whole of the part involved, so that an immediate and decided impression is produced upon the disease. . . .

"Secondly, I have known very satisfactory results from the blister-treatment in cases in which the symptoms, both constitutional and local, were less severe, but where the patient's strength was greatly reduced either from previous attacks of rheumatism or other cause, or when the heart was already seriously diseased. In cases of this kind, the use of remedies which exercise any depressing influence is to be avoided if possible. I have, therefore, sometimes relied on the blister-treatment alone, or in combination with tonics—quinia and iron—and with very good results. The blisters, even though freely applied, do not depress the strength so much as the use of alkalies or other constitutional remedies. . . .

"Thirdly, another class of cases, in which the rheumatic affection rather involves the smaller joints—what is often called rheumatic gout—and in which the constitutional disturbance is of a more subacute character, is also very often benefited by the use of blisters, though less decidedly than the two other forms of disease. In cases of this kind the blisters need not, however, be employed so freely as in the former cases : I also generally combine them with the internal administration of small doses of iodide of potassium, bicarbonate of potash, and colchicum, and often with bark or quinia. . . .

"Lastly, there are cases in which the disease rather assumes the neuralgic than the ordinary rheumatic form, where the pains follow the course of certain nerves, and are often very persistent, in which the application of blisters is very beneficial."

In this last class of cases the blisters are to be applied along the course of the nerves.

30. *Use of Digitalis in the Failing Heart and Delirium of Acute Diseases.*—Dr. JAMES LITTLE read a paper on this subject before the Medical Society of the College of Physicians (Jan. 8, 1873). After alluding to the well-known and valuable investigations of Dr. Stokes and Sir Dominic Corrigan on the condition of the heart in fever, he advocated the employment of digitalis in cases in which the stimulants were either not well borne or were contra-indicated, as, for example, in most cases where there was renal affection ; under such circumstances he (Dr. Little) had given digitalis in more than twenty cases, including six of typhus and one of rheumatic fever, the remaining being cases of enteric fever. He usually gave half-drachm doses of the tincture every three or four hours—rarely every hour—discontinuing the medicine when the pulse fell to 80 ; except in one instance wine and brandy were also given. The case in which digitalis alone was employed, was one of rheumatic fever, occurring in a merchant, aged 35, who had had symptoms of rheumatism last October, and also had suffered six months previously, from dyspepsia, with consid-

erable cerebral disturbance. On the 26th October he remained in bed, his heart was very weak, and his temperature 102°. He was ordered twenty minims of the tincture of the perchloride of iron every fourth hour. Four days subsequently symptoms of cardiac complication supervened. On the 11th November he was delirious at night. On the 18th November his pulse was 100, very feeble; the first sound of the heart was absent, and he had not slept for 100 hours. As stimulants could not be borne, tincture of digitalis, in half-drachm doses, was given every hour. After the eighth dose the patient fell asleep. In consequence of the subsequent occurrence of nausea the tincture was discontinued, and a hypodermic injection, composed of the one-eightieth of a grain of atropia, one-fortieth of a grain of digitaline, and one-fourth of a grain of morphia, substituted. The patient eventually recovered.—*Irish Hosp. Gaz.*, Jan. 15, 1873.

31. *Treatment of Epileptic Convulsions and Strychnia Poisoning by Carbonic Acid.*—Some observations by Dr. BROWN-SÉQUARD on the influence of carbonic acid in arresting epileptic convulsions promise to afford a valuable practical application in the treatment of strychnia poisoning (*Archives de Physiologie*, No. 2, 1872, p. 204). He finds that when epilepsy is artificially produced in guinea-pigs, the fit may be at once arrested by directing with considerable force a current of carbonic acid gas against the mucous membrane of the fauces. On account of the great sensibility of the mucous surface of the nares in man, he believes that the same result may be obtained in patients suffering from epilepsy by injecting this gas into their nostrils; and he recommends this treatment in poisoning by strychnia. Brown-Séquard asserts that Rosenthal has fallen into an error in ascribing the arrestment of respiratory movements, or of strychnia convulsions, by pulmonary insufflation to superoxygenation of the blood. He believes, on the contrary, that these results are due simply to mechanical irritation, by the forcibly inspired air, of the ramifications of the vagi nerves in the bronchi, and of the phrenic and other diaphragmatic nerves. The experiments which lead him to adopt this view show that when the spinal cord is divided above or below the origin of the phrenic nerves, or when the vagi nerves are divided, pulmonary insufflation no longer causes a cessation of the respiratory movements. In like manner, the forcible injection of carbonic acid acts as an irritant to the nerves in the air-passages, and an inhibitory influence is thereby exerted upon respiration and upon convulsive movements. Carbonic acid, which is an excitant of convulsions when acting upon the nerve centres, is thus also an arrester of convulsions when it acts upon certain of the mucous surfaces. The action is, however, in both instances the same: it irritates the nerve-elements (fibres or cells) with which it comes into contact. If these elements possess the power of producing convulsive movements, these movements occur; if, on the contrary, they possess the power of arresting the activity that causes convulsions, this activity ceases, and the convulsions no longer occur.—*Journ. Anat. and Phys.*, Nov. 1872.

32. *Phosphorus in Neuralgia.*—Dr. S. M. BRADLEY, of Manchester, states (*Lancet*, Nov. 9, 1872), that he has frequently employed a solution of phosphorus in ether, and found it of signal service for the cure of neuralgia. The dose is five drops, which contains about one-twentieth of a grain of phosphorus, ether dissolving about one per cent. of phosphorus. This not only relieves the pain, but lessens the attacks. Dr. B. has found it most serviceable in subjects who add to a highly nervous temperament some cause of nervous waste.

33. *Quinia in the Premonitory Stages of Variola.*—Dr. SCHWENNIGER states that large doses of quinia given during the premonitory stage of variola diminish in a marked degree the intensity of the eruption and the gravity of the disease. He gives every hour, during three days, a spoonful of a potion containing two to five grains of quinia.—*Revue des Sciences Méd.*, Jan. 1873, from *Berlin Klin. Wochenschrift*, 25 Nov. 1872.

34. *Liquor Ferri Chloridi in Smallpox.*—Dr. SILBERGLEIT states (*Berliner*

*Klinische Wochenschr.*, Dec. 9, 1872) that he and many other physicians of his neighbourhood have used with excellent results this preparation in cases of smallpox, where the affection of the throat was one of the worst symptoms. He administers twenty to thirty drops with glycerine every hour. The treatment converts the pocks in the mouth and throat into dry scales, and considerably reduces the swelling and hyperæmia. He attributes the good results to the astringent effect on the blood, and to the direct action of the remedy on the diseased mucous membrane, rendered the more thorough by the difficult swallowing. He believes, however, that the glycerine deserves some credit for the good result, as he has watched its effects on catarrh of the female generative organs. This preparation is readily taken, and does not cause nausea nor sickness. He gives chloride of iron in ordinary acute angina.—*London Med. Record*, January 29, 1873.

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### SURGICAL PATHOLOGY AND THERAPEUTICS, AND OPERATIVE SURGERY.

35. *Intracapsular impacted Fractures of the Neck of the Femur*.—Prof. R. W. SMITH exhibited, April 27th, 1872, to the Dublin Pathological Society, two specimens of fracture of the neck of the femur, intracapsular, and with mutual impaction of the fragments. In one of them, solid and complete osseous union had taken place; in the other, consolidation was in progress, but nowhere accomplished completely.

The first specimen shown had been preserved for a great number of years (probably forty) in the Pathological Museum of Trinity College. The history of the injury was unknown, the specimen having, most probably, been found in a subject brought in for anatomical purposes. A vertical section of the bone, recently made by Dr. Bennett, rendered it evident that, at some period of the life of the individual, and long before his death, a transverse intracapsular fracture, with impaction, had taken place.

The neck of the bone had lost its natural obliquity, being directed horizontally inwards; the head of the femur was approximated behind and inferiorly to the posterior intertrochanteric line, and to the lesser trochanter, so that the cervix had nearly altogether disappeared, except in front, where a projecting osseous ridge, formed by the anterior margin of the upper extremity of the lower fragment, marked the seat of fracture. Posteriorly, the line of fracture was close to the corona of the head of the femur.

A vertical section of the bone disclosed the following appearances: The head and neck had been mutually impacted into each other, the compact tissue of the latter having penetrated the former, while, both above and below, it was itself overlapped by the reticular structure of the head of the femur. Osseous union, solid, immovable, and perfect throughout the whole extent of the fracture, had taken place between the fragments, the cells of which communicated with each other, except where the compact tissue of the lower fragment intervened.

The second specimen had been recently found by Dr. Bennett in a subject brought to the school for dissection, but the history connected with which was equally unknown. In this case the limb was shortened half an inch and the foot everted. Its inversion could not be accomplished beyond such a degree as permitted of the patella being brought to look directly forwards.

Upon examination, the neck of the bone was found to have been broken above its centre, the line of fracture being everywhere within the capsule. The normal obliquity of the cervix was not as much altered as in the first specimen, but owing, most probably, to the eversion of the limb (in this case greater than usual), a considerable interval existed in front between the fragments; this interval had not become filled up. Posteriorly the corona of the head of the bone was closely approximated to the posterior intertrochanteric ridge.

A vertical section of the bone, carried through the head, neck, and greater trochanter, disclosed a fracture with mutual impaction of the fragments, so extremely similar to that delineated in Fig. 2, that I have thought an illustration of it unnecessary. The cellular tissue of the head of the bone had been penetrated both above and below by the compact structure of the cervix, the intervening space being filled up by a projecting portion of the broken surface of the superior fragment. It was here that the process of osseous union had made most progress, but it could not be said to be perfect even here. From the appearance presented in this specimen it is manifest that the injury was of comparatively recent occurrence, and I entertain no doubt but that the case would have terminated in perfect osseous union, had life continued for a few months longer.—*Dublin Journ. Med. Sci.*, Jan. 1873.

36. *Urethral Hæmorrhoids*.—Dr. RICHET describes under this name an affection which he believes not to be of great rarity. It depends essentially on the presence of hæmorrhoidal vegetation at the opening of the urethra, accompanied with intense pain produced by the passage of the urine over the sensitive, and occasionally ulcerated growths, which, as a secondary consequence, occasions spasmodic contractions of the urethra, which is one of the characteristics of old-standing cases. Mere excision of the growths, the author believes, will not remove the contraction and hypertrophy of the urethra, which often gives rise to most painful symptoms; and in order to effect this he advises forcible dilatation of the urethra, which rarely fails to give relief.—*Brit. and For. Med.-Chir. Rev.*, Jan. 1873, from *Gaz. des Hôp.*, Jan. 1872.

37. *Development of Cancer of the Skin*.—CARMALT, from an examination of three carcinomatous tumours removed from the skin, comes to the conclusion that the epithelium of hair-follicles is the point of departure of the cancerous growth, and this, he thinks, throws some light on the cause of cancer of the skin. Referring to the statement of Führer, that frequent and rough shaving is apt to produce cancer of the skin of the face, he points out that, out of fifty or sixty cases of cancer of the lip and cheek that have occurred within a recent period in the Breslau Pathological Institute, only two were in women, and not a single case occurred in men with unshaved beards. With reference to the general question of the histological origin of cancer, his conclusions are so far in support of the opinion of Waldeyer and others, that every cancerous growth originates in the epithelial elements of the part, and are in opposition to the opinion of Virchow, that the cancer-cells are the equivalents of connective tissue corpuscles.—*London Med. Record*, Feb. 12, from *Virchow's Archiv*, Iviii.

38. *Skin-grafting*.—In a recent number of the *Giornale Italiano delle malattie veneree e delle malattie delle Pelle* (October, 1872), published at Milan, we find some interesting experiments and conclusions by Dr. GRIFFINI, of Pavia, concerning skin-grafting. Dr. G. claims to have had marked success by this operation in several cases of extensive burns. The grafted pieces, six in number, were solidly united after the third day, and on the twelfth day the excoriations were reduced to half their original surfaces.

The great difficulty of union is owing to the method generally adopted. In place of adhesive strips for retaining the parts in position, he recommends greased bandages, which answer the purpose as well, and can be readily removed for cleansing without danger of dragging out the grafts. The condition of the wound and the thickness and extent of the grafts influence the union. Pieces from two to four millimetres in diameter unite most readily. It is very necessary to include part of the derma. The edges of the wound should be slightly pared whenever union is effected; suppuration diminishes, the granulations become larger, the condition of the wound improves, and cicatrization is favoured and accelerated.

He deduces the following conclusions: Cutaneous grafting would be indicated—

1. In all wounds in full and uniform granulation when we wish to accelerate healing.
2. In chronic wounds of old or cachectic persons; in varicose ulcers with callous margins.
3. In those cases of extensive wounds where spontaneous cicatrization would be attended with considerable retraction of the parts; burns.
4. In wounds of hard surfaces covered with skin only, as the front of the tibia.

W. B. C.

**39. Torsion, as a Means of Arresting Hemorrhage.**—Dr. WILLIAM COLLES, in an instructive article in the *Irish Hospital Gazette* (January 15, 1873), points out the objections to the ligature and acupressure, as means of arresting arterial hemorrhage, and states, as the result of his observations, that torsion is the safest and simplest means of arresting bleeding in wounds. He recommends that the artery should be as free and isolated from surrounding tissues as possible, and that the surgeon should hold the parts at the point of the forceps, so as to cause the twisting to commence at the forceps, and from this gradually extend upwards along the vessel.

The method of applying torsion, he recommends, is that proposed by Mr. Syme, "merely catching the vessel and twisting, without the appliance of the second forceps. Thus we have the inner coats forcibly separated from the outer coats, driven inwards in the vessel so that the two sides come to be applied close together, and the more we twist the external coat the higher the separation of the inner coats takes place. The outer coat is twisted, and retains its new form and position; there is nothing to cause it to untwist. This twisting may be continued till the end in the forceps comes away, which is, I think, to a needless extent; or two or three turns may suffice, and the forceps be then removed. We thus have a perfect obstruction to the flow of blood; the inner coats so inverted, that they cannot be forced back again, and a coagulum soon forms inside; and the outer coat, not much altered from its normal healthy condition, but changed in shape so as to prevent any possibility of the blood passing through it."

"We thus have the bleeding arrested, without the possibility of its recurrence, either immediate or remote, which is the great superiority of this mode of treatment. Besides this, we have the cause of inflammation at its minimum in the wound; and thus the patient is able to be up and about in a much shorter time, as there is no fear of secondary hemorrhage. There is less inflammation or unhealthy action in the wound, and the chances of immediate union are much promoted."

Torsion, however, he observes cannot be applied, in the manner he advises, where it is wished to arrest the current of blood in the continuity of the artery; but he throws out the suggestion that it may be accomplished by laying bare the artery, catching it transversely in a narrow forceps, and pressing it so as to divide the inner layers, and then pushing them away from the outer coat upwards, and also downwards, leaving the outer coat *in situ*, and to contract.

Mr. J. P. HAYES believes (*Irish Hospital Gazette*, Feb. 1, 1873) that it would be a safer procedure to grasp the vessel transversely, at two points—say two-thirds of an inch apart—with a pair of narrow-bladed forceps, and to *divide it completely* midway between the compressed portions. Torsion in its entirety could then be applied to the proximal and distal orifices of the severed vessel.

Should it be found a difficult matter to seize the artery in the manner described, an aneurism needle, armed with a double cord, would enable the surgeon to place two ligatures on the vessel, with an interval of a few lines between them, as the site for *section*. After adequate torsion, each ligature with the included portion of arterial wall should be cut off, and so neither foreign substance nor sloughing tissue could interfere with the process of union between the lips of the wound.

**40. Ligature of the Subclavian for Axillary Aneurism.**—Dr. A. H. HUGHES, Asst. Surg. Bombay Army, records (*Canada Lancet*, Feb. 1873) a case of this in a man at 25, who had a tumour about the size of an orange in the axilla.

Dec. 25, 1872, Dr. H. ligatured without difficulty the subclavian in the third part of its course, the patient having been placed under chloroform. Pulsation immediately ceased, the ligature came away on the twelfth day, and the wound speedily healed. From this time, for a period of eleven weeks, no change whatever took place: no pulse could be felt at the wrist; the tumour was consolidated, but did not diminish in size; and as there was considerable pain in the hand, owing to the pressure of the indurated mass on the brachial nerves, causing restlessness and uneasy sleep, it was determined to get rid of the sac and its contents by inducing suppuration in it.

For this purpose a trocar and canula were introduced, and the mass of coagulated blood contained in the aneurismal sac was thoroughly broken up.

This produced the desired effect; suppuration ensued, a free exit was given for the pus; the tumour gradually diminished in size; and on the 10th of April, the wound having healed, he was discharged from the hospital cured.

At the time of his discharge no pulsation could be detected in the radial artery.

41. *Death from the Use of the Aspirator in Chronic Effusion of the Joint.*—In the preceding number of this Journal (p. 268) we stated that some surgeons of the highest authority do not admit that the use of the capillary aspirator is free from danger in all cases, and this opinion is confirmed by a case of chronic effusion into the knee-joint, reported by Dr. ROBERT McDONNELL, in the number of the *Irish Medical Gazette*, for January 15, 1873. The subject of this case was a healthy man, æt. 56, who had no other ailment except a chronic effusion into the knee-joint. A capillary trocar was inserted, and, without the least difficulty, as much glairy synovia as twice filled the syringe was withdrawn. Two days afterwards he had a severe rigor, and death ensued in a week.

"The post-mortem examination revealed nothing, save a suppurative arthritis of the knee-joint, in which there also existed evidence of chronic rheumatic disease. The joint was full of pus; the synovial membrane intensely vascular; and, at some points, the cartilage presented the porcelanous deposit of chronic rheumatic arthritis."

Dr. McD. says he never met with, in his practice, any case which made a sadder or more profound impression upon him.

42. *Retention of Urine; Puncture with Capillary Trocar; Cure.*—In our preceding No. (p. 268) we noticed ten cases of retention of urine successfully treated by capillary puncture, and we find in the *Gazette Hebdom.* (Jan. 3, 1873) a reference to a case published by Dr. CLEWZEAU in the *Bull. de Théráp.*, 15th Dec. 1872. The subject of this last case had hypertrophy of the prostate gland, and no urine was discharged from the bladder except by overflow. Catheterism having failed, Dr. C. punctured the bladder above the pubis with the needle, No. 1 of Dieulafoy's aspirator. This was repeated six times in four days, then he succeeded in passing through the urethra an olivary bougie, and soon after the patient learned to introduce it himself.

43. *On the Artificial Dilatation of the Anus and Rectum, for Exploration and for Operation.*—Dr. G. SIMON has shown that it is possible to introduce the whole hand even into the male rectum, and to explore and perform operations without inflicting any injury on the walls of the bowel. The dilatation may be effected with or without incision of the sphincters. In the adult, under chloroform, by gradual dilatation, the fingers, half the hand, and then the entire hand and forearm may be introduced if there be no obstruction in the pelvis. In most cases, if the hand does not exceed  $9\frac{1}{2}$  inches in circumference, there will not be occasioned more than a slight tearing of the anus, and only very exceptionally a rupture of some of the fibres of the sphincter. When the hand has penetrated the rectum as far as the sacral promontory, three or even four fingers may be carried on up the sigmoid flexure, and then, through the walls of the gut, the whole abdominal region as far as the kidney and the umbilicus can be examined without danger. Thus a more precise diag-

nosis may be made of affections of the uterus, ovaries, and even the stomach and spleen. With the introduction of only half the hand, the base of the uterus and even the ovaries can be reached; in men the bladder can be felt with precision, and the presence of calculi, their number and size, can be ascertained.

In two cases of ovarian cyst, Dr. Simon was able to determine, by this method of examination, the length and thickness of the pedicle, the absence of adhesions in the pelvic cavity, and lastly, the presence in the fundus of the uterus of two fibrous growths, each as large as a cherry-stone. The operation allowed the verification of this diagnosis. Dr. Simon thinks that full dilatation by the whole hand should be employed in many affections of the rectum; it permits the ready removal of foreign bodies, and in ulceration of the rectum it favours cure by allowing a free discharge of all matters; in fistula it permits the introduction of a speculum analogous to that of Marion Sims, so that internal openings can be seen, and operations upon fistulae, situated high up the bowel, can be performed with certainty.—*London Med. Record*, Feb. 12, 1873, from *Archiv für Klinische Chirurgie*, vol. xv. part 1, 1872.

44. *Verneuil's Operation for the Cure of Stricture of the Lower Part of the Rectum by Linear Rectotomy.*—This operation is described in the *Gazette Médicale de Paris* for Jan. 4, 1873. Observations by MM. Verneuil and Panas on the subject are also contained in the *Gazette des Hôpitaux* for Oct., Nov., and Dec., 1872.

By "linear rectotomy" is meant a section of the stricture and all the rectum below it, including the anus. The bowel is to be divided in its entire thickness, the incision being made in the median dorsal line. It matters not whether this be effected by a bistoury cutting from within outwards, or by the linear écraseur penetrating the rectum from the exterior; the essential of the operation being, that all the coats of the bowel, sound or unsound, including the sphincters, should be divided from the upper level of the stricture downwards. This operation is only applicable to contractions situated near the anus (*i. e.* within  $3\frac{1}{2}$  or 4 inches) as the peritoneum would be endangered by an incision carried very high up. The dorsal median line is chosen for the operation, to avoid hemorrhage and injury of the peritoneum; if this line be kept, no vessel of importance is likely to be divided, and the peritoneum is most distant from that part of the rectum.

This operation was performed first by Verneuil in the year 1863, and the results obtained have been such as to recommend it to other surgeons.

Linear rectotomy is not indicated in all cases of stricture, but only in those where dilatation is of no avail, when, despite all treatment, the contraction increases and is followed by great thickening and induration of the structures around the bowel; softening of the mucous membrane, growths, ulcerations, and the formation of fistulous passages, from which the patient ultimately succumbs.

The experiments of Reybard on the urethra in animals have shown that the longitudinal section of a canal is never followed by a stricture, but, on the contrary, that the cicatricial tissue which develops has always a tendency to become dilated. When anal fistulae are divided in their whole length, there does not result any contraction of the rectum. On the other hand, Chassaignac has ascertained that the fear of incontinence of feces resulting from the operation is chimerical.

M. Verneuil has performed linear rectotomy in ten cases, which he classes as follows: Four cases of stricture with numerous anal fistulae and great induration of all the cellular tissue around the rectum; one case of stricture with an old fistula and a recent abscess; one case of simple stricture with a fistula, operated upon twice unsuccessfully; one case of simple stricture at the commencement of the rectal pouch; three cases of cancer of the lower part of the rectum.

Of the first four cases, which were of a very severe character, two were radically cured, the others were much benefited, but after a time there was a tendency to return of the stricture. The fifth case resulted in a cure. The

woman died two years afterwards of phthisis, and at the necropsy no real stricture could be found. The sixth was again a successful case. The seventh patient was operated upon three months ago, and has been discharged apparently cured; but sufficient time has not yet passed to prove the success of the operation. The three cases of cancer were very much relieved by the operation.

In two cases in which M. Panas performed linear rectotomy for fibrous stricture, one quite recovered and was found well eighteen months after the operation; the other died.

**45. Removal of a Needle from the Heart; Recovery.**—Mr. GEO. W. CALLENDER related to the Royal Medical and Chirurgical Society (Feb. 11, 1873) the history of a man who for nine days followed his ordinary occupation, in pain and with discomfort, having a needle fixed in the tissues at the apex of the heart. On the ninth day, in consequence of his statement and in view of the pain he was suffering, an incision was made over the fifth intercostal space, and the broken eye of the needle was found on a level with the intercostal muscle. This extremity was seized, and the foreign body was withdrawn. The patient recovered without an unfavourable symptom. With this history the exact position of the needle in the wall of the chest is given, as also is that of its probable position in the heart; the movements of the foreign body, caused by those of the heart, are figured, and their measurements are added. Some remarks are made upon recovery and duration of life after somewhat similar injuries, and an appendix of cases is given in the form of a table.

Mr. Callender said it was quite clear that the needle had passed into the heart; it passed through the intercostal muscles, and lodged in the heart, and swung as on a pivot, the intercostal muscles being the centre. Its movements were similar to those he had seen when experimenting on animals. It was interesting to notice, knowing how severe injuries to the heart are, how this man was able for nine days to continue at his work, only suffering from irritation of the intercostal nerves. He thought the pain the patient complained of when first he got up was due to nervousness. He could not say whether the needle passed into the muscular substance or into one of the cavities; he thought from its position and direction that it had passed into the former. He had not used a magnet for diagnosis in this case; he had done so lately on a child into whose knee-joint a needle had entered and been broken off; it did not succeed. He did not think much of its practical utility as a means of diagnosis.—*Lancet*, Feb. 22, 1873.

**46. Removal of a Gum Catheter from the Bladder.**—Mr. WILLIAM STOKES records (*Irish Hospital Gaz.*, Jan. 1873) a case in which he successfully performed Allarton's median operation for the removal of an entire gum catheter from the bladder. The chief points of interest of the case, are the extreme difficulties that had to be overcome, owing to the narrowing of the urethra in two situations, the numerous false passages, and the great induration, thickening, and matting of the soft tissues in the perineum, and finally, showing that the vermicular action in the urethra is contrary to the commonly received opinion, towards, and not from, the bladder.

The question as to the vermicular action of the urethra was the subject of discussion at the meeting of the Surgical Society of Ireland, January 3, 1873, and very contradictory opinions expressed. Prof. Macnamara stated that formerly he was of opinion that the vermicular action of the urethra was outwards and not inwards, but from the theory of cases of stricture he was led to entertain an opposite view. "Many years since his attention was drawn to the fact that if a catheter was fastened in the urethra the tendency was to make its way towards the bladder and not to fall out." . . . "He determined to make a practical application of the subject, and many years ago it became his practice when dealing with what he might call mixed strictures—partly organic and partly spasmotic—to pass a cat-gut bougie as far as he could towards the bladder and fasten it there, and on coming back two hours afterwards he would be rather surprised if it had not travelled on towards the bladder. He communicated these observations to his friends in the profession many years ago. One

remarkable case occurred during the period when Mr. Stokes was his colleague in the Meath Hospital. Mr. Stokes had a case of rather difficult stricture to deal with. He advised him to introduce a cat-gut bougie and lodge it in the stricture, and assured him his experience was that in a couple of hours he would find that the cat-gut had travelled towards the bladder. Mr. Stokes replied that the teaching of the school was opposed to this. However, he followed out his suggestion, introduced the cat-gut bougie into the stricture, and in two or three hours afterwards he was much gratified to find it was lodged in the bladder. He (Prof. Macnamara) believed that the fact—that an instrument had a tendency to work inwards towards the bladder—could only be explained on the principle of vermicular action. No doubt the vermicular action was feeble, and in the 60th or 70th part of a square inch of the urethra its force would be almost infinitesimal; but when an instrument was introduced for some five or six inches the vermicular action was exercised over the whole of this length, and was sufficient to work the instrument on by degrees until it entered the bladder." . . . " He believed that this physiological fact was of great practical importance in the treatment of strictures. He was now in the habit whenever he met with an old stricture, which some persons call 'impassable stricture,' of treating it with the cat-gut bougie, and this mode of treatment had been repeatedly followed by the most satisfactory results. Having lodged the cat-gut bougie in the stricture he left it there, and his experience was, on going back in two or three hours, even in spite of the cat-gut swelling, it had advanced towards the goal he wanted it to reach. The swelling did not occur in the case of the small gum-elastic catheter which he also used. That instrument would gradually work down in the same manner; it had less resistance to encounter in the shape of swelling, but it afforded just the same surface for the vermicular action, and it would much more frequently reach the bladder than the cat-gut." Dr. M. supposed this observation was original, but he had recently learned that Dr. Fleming had anticipated him, and placed similar facts on record in the *Dublin Hospital Gazette*, in 1858.

Prof. Morgan, Dr. Stapleton, Mr. Wharton, Mr. Richardson, and Dr. McDowell expressed their disbelief in the suction power of the bladder and the vermicular action of the urethra.

47. *Nitrate of Lead in the Treatment of Onychia Maligna*.—Prof. VANZETTI, of Padua, has successfully employed the nitrate of lead as recommended by Dr. Moerloose, of Gent, for the cure of onychia maligna, an affection often rebellious to ordinary treatment. He excises the excrescence of the nail to the level of the ulcer, then covers it lightly with nitrate of lead, and afterwards envelopes the part with a compress of linen. At first a thick, shiny crust, adhering to the margin of the ulcer, forms, which falls off after a few days, leaving a wound which quickly cicatrizes.—*Abeille Médicale*.

The late Prof. Physick recommended, as an application to onychia maligna, a powder composed of equal parts of red precipitate, sulphate of zinc, and corrosive sublimate. This is to be sprinkled over the part, which is then to be enveloped in lint, and tincture of myrrh poured over the dressing. We have employed this with entire success.

48. *Ganglionic Abscess of the Neck; Ulceration of the Jugular Vein; Consecutive Hemorrhage; Death*.—This case occurred in the wards of M. PÉRIER, at the Hôpital Ste. Eugénie. The patient was a child of three years. The abscess had developed rapidly, and was about bursting. An incision was performed with the greatest care and precaution, and only through the skin. A quantity of pus came out, followed by a large amount of venous blood. Compression on the wound stopped the hemorrhage, but it recurred the three following days, and on the fourth day was accompanied by a fit of suffocation. Finally, the child died the fifth day after the incision. At the post-mortem the following lesions were discovered: Metastatic abscesses in the lungs; endocarditis with ulcerations; vast cavity in the neck, extending to the submaxillary gland; jugular vein uncovered over a length of three centimetres; carotid

unimpaired. An injection with water made into the jugular vein showed that ulceration of the vessel had previously existed.—*Lancet*, Jan. 25, 1873.

49. *Polypus of Posterior Nares, destroyed by Electricity.*—M. BRUNS relates a case in which a large retro-maxillary tumour was removed by passing through its currents of electricity at 130 sittings. In an appendix to his communication he refers to eight other cases which he found upon record. Six of these were observed to the close of the patients' life, when it was found that the tumour was entirely removed. Confessedly, M. B. remarks, the treatment by electricity is by no means a pleasant one; whether the suffering it gives rise to results from the delicate structure of the tumour, or from the manner in which the electric current has been applied, is still a question. The action of the electric current upon the tumour is that of a caustic, producing death of its tissues, or, in part perhaps, that also of a catalytic. Although M. B. by no means overlooks the inconvenience attendant upon the employment of electricity for the removal of the tumours in question, still the object of his communication is to claim for it a more extended trial.—*Centralblatt f. d. Med. Wissenschaften*, August 23, 1872, from *Berl. klin. Wochenschr.*, No. 27-8, 1872.

D. F. C.

50. *Elephantiasis of Prepuce, weighing 22 pounds; Excision; Recovery.*—Sub-Assistant Surgeon KASSY KINKUR MITTER records (*Indian Med. Gaz.*, Jan. 1873) a case of this which is very remarkable from the disease affecting the prepuce alone, the scrotum being perfectly normal. The subject of it was aged 45, and when first seen by Surgeon M. "the tumour was of a conical shape (with the base of the cone downwards, and the apex represented by the root of the penis), hanging several inches below the knees. The base or lower part of the tumour was nearly double the size of an adult's head. The man used to walk with great difficulty, as during each pace the tumour was an impediment to the forward motion of the legs. The surface of the tumour was rough and tuberculated, more so at the lower than at the upper part. In front and at the lower part there was an opening leading to a zigzag canal for the exit of urine. He was well built.

"On the 19th of May, 1872, he was put under the influence of chloroform. A piece of broad tape was tied round the root of the penis to check hemorrhage. All attempts to pass a long director through the canal, to serve as a guide to the glans penis, failed, as the passage was tortuous, and too narrow in some places. An incision was made longitudinally along the middle of the tumour, a little below the penis; the canal of the prepuce was laid open, and through it a director was passed up to the glans, which was carefully freed; the penis was dissected out, and then, with one sweep of the knife, the tumour was separated. It weighed 22 pounds, and in structure was very similar to the ordinary scrotal tumour.

"The case made a rapid recovery, with carbolic acid dressing."

## OPHTHALMOLOGY.

51. *Operation for Cataract by Linear Section, without Excision of the Iris.*—M. NOTTA, in a communication made to the Surgical Society of Paris (*Gaz. Hebdom.*, Feb. 14, 1873) and since published in *L'Union Médicale* (Feb. 18 and 25), after pointing out the various objections to the several operations for the treatment of cataract, describes a method he has devised, and by which he claims to have been successful in nine cases out of ten in which he has resorted to it. His method is as follows: The pupil being dilated with atropia, the eye is fixed by the ophthalmostat of Nélaton, and the upper lid kept raised. Graefe's knife is then inserted into the cornea at its junction with the sclerotica from two to three millimetres above the equator of the eye; then the knife is passed

transversely and parallel to the iris, making the counter puncture at the junction of the cornea and sclerotica ; as soon as this is accomplished the knife is turned so that its cutting edge is towards the cornea, when by a slight sawing motion the cornea is divided. After allowing the patient to rest a moment the capsule of the lens is divided with a cystotome, then slight pressure is made with the back of a curette on the lower lid, at a level with the lower border of the cornea, whilst the upper lid is gently raised, when the lens passes out with the greatest facility. As soon as it is ascertained that there is no blood or fragments of the lens remaining in the eye, and not the smallest portion of the iris between the lips of the incision, the patient is directed to close the lids, but not too strongly, and then the eye is covered with several superimposed bandages of English taffety, taking care to leave both corners of the eye free, for the space of three millimetres, so as to allow of the escape of the tears. The other eye is closed by three or four bandages of taffety. The patient is kept in complete darkness for forty-eight hours ; after this time the bandages are raised, and generally in from four to six days the bandages are dispensed with.

M. Notta asserts that the cornea being transversely divided by his method, there results so slight a linear opacity as not to interfere with vision, and in some cases it is difficult even to detect the cicatrix.

A perusal of the report of M. Notta does not seem to us to justify the claim he makes for the great success of his operation. The following were the results in his ten cases :—

Regular circular pupil . . . . .	in 6 cases.
Very slightly deformed . . . . .	" 3 "
Notably deformed . . . . .	" 1 case.
Pupil perfectly clear . . . . .	" 6 cases.
Pupil presenting a whitish reticulum . . . . .	" 4 "
No synechia . . . . .	" 5 "
Synechia . . . . .	" 5 "
Scarcely visible corneal cicatrix . . . . .	" 5 "

52. *Extraction of Cataract by Graefe's Modified Linear Section.*—Dr. DAVID LITTLE has published (*Brit. and For. Med. Chirurg. Rev.*, Jan. 1873) a tabular report and remarks on two hundred cases of extraction of cataract by Graefe's modified linear extraction, which is a valuable contribution to ophthalmic statistics.

The following was the resulting vision in these cases :—

No. of Eyes.			
146	could read Jaeger's test types, No.	1.	
14	"	"	No. 2.
11	"	"	No. 4.
3	"	"	No. 6.
2	"	"	No. 8.
1	"	"	No. 10.
1	"	"	No. 14.
4	"	"	No. 16.
1	"	"	No. 19.

1 could only count fingers.

9 same as before operation.

7 lost.

200

If we consider those cases that can read from No. 1 to No. 14 as perfect results, those from No. 16 down to good preception of light as imperfect, and all those the sight of which is destroyed as failures, then we shall have the result of my 200 extractions as follows : 3.5 per cent. of loss ; 7.5 per cent imperfect ; 89 per cent. perfect.

53. *Depression of Cataract.*—The removal of the opaque lens from the axis of vision, originally by couching and afterwards by reclination, which produced very brilliant primary effects, but too often very disastrous ultimate results, of

late years has been entirely abandoned, and its performance strongly reprobated by all experienced ophthalmic surgeons. M. TAVIGNOR, in a memoir read before the Academy of Sciences, 27 Feb. 1873, and which is published in the *Revue de Thérapeutique Médico-Chirurgicale*, 15 Feb. 1873, advocates a reinvestigation of the comparative merits of extraction and depression, and extols a method he has devised which he terms the sub-capsular ("sous capsulaire") in which the needle—a straight one—is introduced, as in the ordinary operation, but passed between the anterior capsule and the lens, so as not to wound the former, and the lens is then depressed in the usual way. He ascribes the ill results of depression by the usual method to the anterior capsule being wounded. He promises to publish shortly the statistics of his operations, which he asserts have been highly favourable.

The passing a needle between the lens and its anterior capsule without wounding the latter, must be a most difficult proceeding, so difficult indeed, that we should deem it impossible, had not M. T. asserted that he had performed it.

54. *Influence of the Degree of Light on Acuteness of Vision.*—The *Revue des Sciences Médicales* (Jan. 1873) contains a notice of a very interesting "These de Paris" (1872), by Dr. N. TH. KLEIN, from which we extract a few observations. From many experiments Dr. K. concludes "that the acuteness of vision, as ascertained by the aid of scales of letters, of lines or of figures, shows marked variations under the influence of different degrees of light." The acuteness of vision considered normal by authors is not the maximum of acuteness.

The following are the practical conclusions arrived at by Dr. Klein for the exact determination of acuteness of vision.

1. It is indispensable to have a determined amount of light.
2. The intensity of the light used should be noted with the degree of acuteness of vision of the person examined.
3. The degree of light which Dr. K. thinks most convenient, is that which is emitted by from 25 to 100 English candles.
4. The best tables now in use are those of Snellen, of Giraud-Teulon, and of Böttcher.
5. The tables of Jæger are much inferior to the preceding as well on account of their want of a fixed base as by the irregularity of their gradation.
6. The determination of the acuteness of vision of an individual with a fixed light may inversely serve to measure the degree of light; it is sufficient for this purpose to diminish the light in a calculable proportion, until the acuteness is obtained by which the light has been fixed.

55. *Conjunctival transplantation for the cure of Symblepharon.*—The palpebral and ocular conjunctiva are sometimes destroyed by burns, or the action of chemical substances, etc., resulting in adhesion of the eyelid to the eyeball. It is often difficult to permanently separate this adhesion so as to allow of the free motion of the lid over the ball. Dr. J. R. WOLFE, Surgeon to the Glasgow Ophthalmic Institution, states (*Glasgow Med. Journ.*, Feb. 1873), that for the last few years he has practised a plastic operation of the conjunctiva for the radical cure of this morbid condition.

"I take," he says, "a portion of the neighbouring healthy conjunctiva of the eyeball, wherever I can get it, to supply the palpebral conjunctiva which has been destroyed. For experience has taught me, that loss of conjunctiva oculi, even to a very large extent, is generally regenerated without prejudice to the neighbouring tissues, whilst loss of the conjunctiva of the eyelid is followed by such disastrous results as pannus, ulcerated cornea, etc. etc."

In one case which he relates, he observes, "I dissected carefully the eyelid from the eyeball, separating it as far as the *cul-de-sac*, to make quite sure that I had liberated the eyeball completely. I then passed two fine silk threads through each side of the conjunctiva at the outer aspect, which ligatures marked the breadth of the conjunctival flap to be removed. These two I put on the stretch, and with a pair of scissors I first cut horizontally, and then on

each side of the ligatures, then, putting the scissors behind, I cut it from the eyeball. In cutting the flap on the stretch by means of the ligatures, I take care that the conjunctival flap is removed without any of the sub-conjunctival tissue. The same process is followed at the inner side, and these two flaps are brought together in the middle line, and secured with stitches."

The operation proved successful, there resulting free movement of the eyeball with scarcely any perceptible trace on the latter where the flaps were borrowed.

There is a limit, he admits, "to the extent to which we may go in borrowing conjunctival substance from an eye which has already been injured. If we surpass that limit, the corneal opacity is sure to extend still further, and we lose the last chance of saving vision. Indeed, we sometimes meet with cases in which the infliction of a new wound amounts to the destruction of the eye." He therefore, in a case of very extensive symblepharon, tried to supply his patient with conjunctival substance from a rabbit. Accordingly, he operated, Nov. 3d, 1872, in the following manner: "Both patient and rabbit being put under chloroform, I separated the adhesions, so that the eyeball could move in every direction, and, evert the lower eyelid and turning it downwards. I took from the rabbit that portion of the conjunctiva which lines the inner angle, covering the *membrana nictitans*, and extends as far as the cornea, the portion to be removed having been previously defined by four fine silk threads, which enabled me at the same time to transfer it quickly to replace the lost conjunctiva palpebræ of the patient, in which place it was secured with stitches."

On Nov. 7th, the ligatures were removed. "Patient remained in the hospital for a week, during which time he was carefully noted by me, my assistant, and students. The eyelid remained separated through its whole extent, the eyeball movable in every direction, while the transplanted palpebral conjunctiva retained its vitality, as shown by its red appearance and comparatively smooth surface. There was only one gray spot, the size of a pin's head, visible. Was dismissed on the 11th Nov. He returned three days ago, last Tuesday, Dec. 3. The eye was found in a satisfactory condition. The conjunctiva has a healthy look, the free motion of eyeball maintained, which enabled me at once to make an artificial pupil."

Dr. W. has operated with success on another patient, whose case, however, was not so aggravated as the first.

56. *Intracranial Tumour; Glioma of the Fifth Nerve*.—Dr. T. E. LITTLE exhibited to the Dublin Pathological Society (April 27th, 1872) a specimen of a remarkable tumour, which engaged several important structures at the base of the brain.

It had occurred in the person of a man, of the age of forty-six, who had been an extremely intemperate liver, and who had, some ten or twelve years ago, suffered from a severe and protracted attack of constitutional syphilis; his wife had aborted three times in consequence of this disease, communicated to her.

The first symptom of his disease occurred about twelve months before he died. This symptom was intense pain throughout the district of the branchings of the fifth nerve of the left side. This pain gradually became more and more excruciating, and eventually came to be almost continuous except when relieved by narcotics. Last December (three months before death) he became suddenly paralyzed on the affected (left) side of the face; about the same time he perceived that he had double vision, and soon afterwards he began to lose the sight of his left eye. He was an inmate of Sir Patrick Dun's Hospital in the month of February, 1872, and at this period the following was, briefly, his state: He still suffered much from deep-seated pain of the left side of the face; and it was chiefly for this, and for the condition of blindness of the left eye, he sought relief. Paralysis of several of the cranial nerves existed, of which the following are the details: There was partial paralysis of the left third nerve, complete paralysis of the left sixth nerve, complete paralysis of the portio dura, with partial paralysis of the portio mollis of the left seventh nerve, complete paralysis of the left fifth nerve—motor, sensory, and gustatory; in addition to

these symptoms, a large opaque ulcer occupied the lower two-thirds of the left cornea, and there were evidences of deep-seated involvement of the left eyeball. Shortly after this the paralysis of the third nerve became complete, and he became absolutely deaf to all sounds (the deafness of the right side, however, was an old and unconnected circumstance). In this condition he died, retaining his consciousness to the last.

On opening the head, the brain generally and its membranes were found to be unusually anaemic. A tumour of irregular shape, and considerable size, was found at the base of the brain, in the following situation: The principal bulk of it existed as a flattened mass, involving and lying in the left side of the tentorium; it thus lay between the middle lobe of the cerebrum and the cerebellum. From this it extended outwards for some distance into the dura mater, covering the upper surface of the petrous bone, and forwards into the cavernous sinus, the posterior part of which it almost completely blocked up, where it involved the Casserian ganglion, and the nerves passing into this space. A small nodular piece, almost separate from the larger mass described, and about as large as a small nut, took the place of the part of the fifth nerve, between its apparent origin and the ganglion, and encroached upon the pons Varolii at the place of origin of that nerve, where a small softened excavation existed in that structure. The diseased mass did not project extra-cranially in any place.

A considerable region of the posterior part of the middle lobe of the left cerebral hemisphere was far advanced in a state of softening. The petrous bone, in the region of the tumour, was roughened and eroded to a slight degree.

Drs. Yeo and Harvey (who undertook the microscopic examination of the tumour), made the following communication as their report:—

“The tumour consists of a delicate network, containing within its meshes various cell forms, with some nerve fibres passing through it.

“Sections, with the cells shaken out, show the network to be composed of an interlacement of delicate bands, resembling the neuroglia of Virchow; thickened, however, and more granular. In some places it seemed to be composed of anastomosing, multicaudate cells; in others, the bands presented an irregular, or even fibrillar appearance. Some of the multicaudate cells, broken off from the reticula, contained distinct nuclei, and gave the idea of being in a condition of rapid proliferation. The greater number of the cellular elements resemble those of ordinary small-celled sarcoma. There exist, also, numerous spindle-shaped cells of different sizes, some short and obtuse, others very much longer, presenting various gradations from the ordinary cells to the multicaudate cells mentioned above.

“The fine nerve bundles which run through the tumour are widely separated by the proliferating neuroglia, and the nerve fibres are studded with numerous nuclei.

“We are of opinion that this is a very well-marked example of the class of tumours called by Virchow ‘Glioma,’ commencing in the nerve tissue.”—*Dublin Journ. Med. Sci.*, Jan. 1873.

## MIDWIFERY AND GYNÆCOLOGY.

57. *Report of the Rotunda Lying-in Hospital.*—Dr. GEORGE JOHNSON read before the Dublin Obstetrical Society a report of the Rotunda Lying-in Hospital for the year 1872, which presents many points of great interest. One or two of these we shall notice.

The number of deliveries during the year ending November 5th, 1872, were in the hospital 1193, and 130 at the homes of the patients.

In 131 cases it was considered prudent to employ the *forceps* to effect delivery, 95 being primiparæ, and 36 pluriparæ. This, no doubt, appears a large number, and will be considered by some, followers of the old school, in the light of “meddlesome midwifery.”

But, having now for some time closely watched the process of labour, and carefully considered all the circumstances attendant upon the descent of the foetal head through the pelvis, the injurious effects produced by its long pressure on the soft parts, and, in cases where the liquor amnii has escaped at the commencement of labour, the danger that arises from the head pressing on the expanded cervix uteri, before the os is fully dilated, we have come to the conclusion, and our established rule is—that so long as nature is able to effect its purpose without prejudice to the constitution of the patient, danger to the soft parts, or the life of the child, we are in duty bound to allow the course of labour to proceed; but as soon as we find the natural efforts are beginning to fail, and after having tried the milder means for relaxing the parts, or stimulating the uterus to increased action, and the desired effects not being produced, we consider we are in duty bound to adopt still prompter measures, and by our timely assistance relieve the sufferer from her distress, and her offspring from an imminent death. Why, may I ask, should we permit a fellow creature to undergo hours of torture when we have the means of relief within our reach? Why should she be allowed to waste her strength, and incur the risks consequent upon long pressure of the head on the soft parts, the tendency to inflammation and sloughing, or the danger of rupture, not to speak of the poisonous miasm that emanates from an inflammatory state of the passages, the result of tedious labour, and which is one of the fertile causes of puerperal fever and all its direful effects, attributed by some to the influence of being confined in a large maternity, and not to its proper source, *i. e.*, the labour being allowed to continue till inflammatory symptoms appear. The more we consider the benefits of timely interference, and the good results which follow it, the more are we induced to pursue the system we have adopted, and to inculcate to those we are instructing the advantages to be gained by such practice, both in saving the life of the child, as well as securing the greater safety of the mother.

At the same time we do not forget to point out, that, although the forceps in the hands of the skilful practitioner may be a perfectly safe and innocuous instrument, when used cautiously, and with due regard to the internal conformation of the pelvis; that, on the contrary, they become the very reverse, when attempted by those not thoroughly acquainted with the mechanism of parturition, or who have not acquired that sensibility of touch which is so essential to the obstetrician. That, although to the looker-on their application may appear simple and easy, still, the greatest care and caution are required in the mode of their introduction, the accuracy of their application, and eventually in the method of extraction.

Of these 131 cases, there were 9 deaths, or 1 in 14 $\frac{1}{2}$ , *viz.*, 1 from ruptured uterus, her third pregnancy, having been allowed to remain ten and a half hours in the second stage; she died in twenty hours after delivery; 1 from the island of Jersey died of mental distress, being seduced, her first pregnancy, no abdominal symptoms whatever were present, as corroborated by post-mortem examination; 2 from convulsions, *viz.*, 1 a primipara had 27 fits, and died on the fifth day, and 1, her fifth pregnancy, admitted in her seventh month, when labour was induced, convulsions continued, and she died within thirty hours; 1 died of peritonitis, a primipara, in very delicate health, fretting, "her husband being at sea;" 1 died of peritonitis, but with extreme disease of the kidneys, a primipara, and unmarried; 1 died of peritonitis, a primipara, aged forty, sent from the country in a very delicate state of health, with fatty degeneration of the heart; 2 died of gastro-enteritis, both primiparæ, and both suffering from gastritis on admission, 1 of which was a case of seduction.

77 male and 54 female children were delivered, of which 62 males and 42 females were born alive; 5 males and 7 females died some time after birth; 6 males and 4 females were dead when born, and 4 males and 1 female were putrid.

In 35 instances we were obliged to employ the forceps before the os was fully dilated, 27 being primiparæ and 8 pluriparæ. In 30 of these cases the interference was considered necessary, in consequence of the os uteri continuing undilated, apparently the result of the too early rupture of the membranes,

and the escape of the liquor amnii, and thus exposing the cervix to an injurious amount of pressure, and which, if prolonged, would be so apt to produce sloughing, and mayhap fatal results.

In all these cases the usual means of dilating the os were first employed, and, as soon as it was sufficiently expanded to enable us to pass the blades of the forceps, we did not hesitate to employ them, and in every instance, so far as the labour was concerned, with a beneficial result. All the mothers recovered but 2, both primiparæ; in 1 the waters had escaped 7 days; she was an elderly woman, aged 40, in very delicate health, with gastritis and disease of the heart, and, although very anxious about herself, she went on favourably for four days, when peritoneal symptoms set in, and she died on the ninth day. At post-mortem examination peritonitis to a slight extent was found; the uterus was healthy. The second was admitted with gastritis, diarrhoea supervened, which could not be checked, and she died on the fifteenth day.

In 3 cases the interference was owing to convulsions; 2 primiparæ recovered; 1, her fifth pregnancy, died.

In 2 from accidental hemorrhage, both pluriparæ, and both recovered.

22 male children were delivered, 17 being alive, all of which lived. 12 female children were delivered, 11 being alive, 9 of which lived.

Dr. Johnson refutes the accusation made against his hospital, and shows that a lying-in hospital, conducted like the Rotunda, is not more liable to mortality than smaller institutions of a similar kind, and that even infectious diseases when introduced into it did not necessarily spread. He maintains that the statistics of small country hospitals bear no analogy whatever with those of large maternities—the majority of patients in the former being a chosen few—having good characters, etc.; whereas the patients in the latter are often the victim of seduction, the houseless stranger, the famished wretch, the deserted wife, and those who present every condition favourable for the invasion of disease.—*Dublin Journ. of Med. Science*, Feb. 1873.

58. *Mechanism of the Expulsion of the Placenta.*—Mr. WILLIAM LYON states (*Brit. Med. Journ.*, Dec. 14th, 1872) that he has been unable to learn anything on this subject from books, but that from careful observation he is satisfied nature observes a particular form in the expulsion of the placenta. In most cases of detached placenta where undue interference has not been practised, he adds, its lower part will be found lying in the cavity of the pelvis, and its upper more or less above the brim. When the uterus contracts, the placenta is folded upon itself, with sometimes the uterine and sometimes the foetal surface in contact, and the folds always longitudinal or in the direction of the length of the passages. The double mass is then expelled with its two edges foremost, and the part which first passes the os vaginalis is the point where the two edges meet in forming the double.

The mechanism displayed in this process must convince every one of the propriety of withholding all interference, "except what may contribute to uterine contraction—the only admissible moving power. The adaptation of the mass to the shape of the passages, and its consequent facility of egress, will be more apparent if we contrast the case with one in which the protrusion is effected by pulling the cord. Under such circumstances, the placenta is brought through the passages in the form most certain to offer resistance, and is protruded like a plug. The irritation caused by this treatment may raise a pain, which may assist in its expulsion; but it is remarkable how much force is often required to effect that purpose, if the placenta be of large size. Cases may occur, however, which may seem to contradict my statement. We may sometimes feel the placenta advancing in the form of a smooth ball, by purely uterine effort; and may be unable to detect the edge of the mass; but, on particular examination, we find that the insertion of the cord is up in the cavity of the uterus, and that the membranes are still adhering to the edge of the placenta. The situation of the insertion of the cord proves that the presenting part must be the edge of the placenta; and, if we wish for further proof, it will be obtained by tearing the membranes with our fingernail, and converting the case into an ordinary natural one. If the expulsion

take place before we can accomplish that, as is sometimes the case when the membranes are strong, we can take the most prominent between our finger and thumb, and retain our hold till it is completely protruded, when we will be quite sure. We find also, in cases in which the whole mass is brought into the pelvis by traction of the cord, that it will be expelled, if left to uterine contraction, in the regular way, and not otherwise; whereas, if the traction be continued till the completion of the process, the part which is first protruded is that into which the cord is inserted. Under the same circumstances, also, if it be necessary to help the pains, we effect our purpose most easily by reaching the edge of the placenta with our finger, and using a little pressure on it, so as to form a natural folding. It will then be in the most favourable position for being expelled, whether it be left to the action of the uterus, or assisted by pulling the cord.

"We must look on this subject as something more than mere matter of curiosity, because it affects the management of the placenta—a very important part of labour. The temptation to pull the cord, both when there are no pains and when they are not sufficiently strong, is the cause of much rough treatment; and such conduct can only be defended on the ground that it tends to insure contraction of the uterus. But surely such a state is more certain and less painful when induced by the natural effort, or by manipulation of the uterus in the abdomen."

59. *Contribution to the Study of Puerperal Septicæmia*:—M. A. D'ESPINE has published a most elaborate and instructive memoir on this subject, extending through four numbers of the *Archives Générales de Médecine*. The following are given by him in his concluding article, in the October number of the above journal, as the conclusions which he considers himself justified in drawing from his investigations:—

1. Puerperal septicæmia consists of a series of symptoms, the severity of which is in proportion to the quantity of septic matter absorbed by breaches of surface in the utero-vaginal canal.

2. These symptoms are not peculiar to the puerperal state, and ought to be classed with those produced by septicæmia in the wounded and in animals.

3. The source of puerperal septicæmia is always the uterus or vagina; and all causes which prevent the healing of the bared interior of the uterus, or which favour the production of septic matter in its neighbourhood, have an important action in its production.

4. The most common channel of absorption is through the lymphatics, and its passage through them can generally, but not always, be traced by lymphangitis.

5. Peritonitis is the result of the conveyance of septic matters through the lymphatics of the uterus, and it may be compared to the local inflammations which develop round infected wounds.

6. The effect of septic absorption is to develop congestions and inflammations in internal organs, chiefly in the lungs, kidneys, and intestines; subserous ecchymoses and interstitial apoplexy; internal and external inflammations, which localize themselves in the neighbourhood of the serous membranes; *during life*, these actions are recognized by fever, diarrhoea, pulmonary congestion, epistaxis, and often by fugitive cutaneous eruptions.

7. Milk fever has no existence; febrile action in the first week after delivery almost always depends on absorption of lochia through slight abrasions or lacerations of the utero-vaginal canal. It may continue for some weeks should the uterus not be firmly contracted, or should the lochia be fetid. In the latter case ulcerations, through which absorption takes place, may almost always be found either on the cervix or in the vagina.

8. These slighter affections are often, but not always, accompanied by angioleucitis and slight perimetritis. When the septic poison continues long, we may have consumption and death (*phthisie septique*).

9. Puerperal *pyæmia* is a complication of septicæmia, and is almost always accompanied by the presence of pus in the veins of the uterus.

It is a comparatively rare occurrence, and probably depends on septic embola.

Metastatic visceral abscesses are secondary to it, while almost all the inflammations of the cellular tissue and of the articulations depend on lymphatic infection, and are not embolic in their origin.

60. *Pregnancy with Imperforate Hymen.*—Several cases have been at various times recorded, in which impregnation has taken place, although the hymen presented only a small opening. Dr. KARL BRAUN adds a remarkable instance. A married woman, aged 20, was sent to him from Galicia, to have the Cæsarean section performed, as she was pregnant, and the vulva was completely closed. On examination, there was found to be a membrane extending from the rectum to the urethral orifice, and presenting not the slightest trace of an opening. On introducing a catheter when the bladder was full, the result sometimes was the evacuation of a large quantity of urine, while, on other occasions, only some white acid mucus, apparently vaginal, escaped. It was also found that a fine sound could be introduced into this opening and felt through the rectum, while, at the same time, the bladder was emptied by the catheter; and it became evident that the vagina opened with the urethral canal into a common outlet. Dr. Braun divided the membrane from the urethra to the rectum. The patient was in due course delivered of a healthy child, and returned home a month afterwards. Dr. Braun also adds an account of another case lately under his care, in which the opening in the hymen was only two lines wide.—*Brit. Med. Journal*, Dec. 7, 1872, from *Wiener Medizin. Wochenschr.*, Nov. 9.

61. *Diseases of the Urinary Organs in Pregnancy.*—R. KALTENBACH comments on the albuminuria of pregnancy and parturition, and illustrates his remarks by a number of cases in the clinic at Freiburg. In childbed, albuminuria is closely connected with catarrh of the bladder. This rarely arises from traumatic causes, such as the long-continued pressure of the foetal head; more frequently from diseases of neighbouring organs. Perimetritis may lead to stagnation of the urine and vesical catarrh by inducing paralysis of the wall of the bladder, parametritis by producing swelling of the neck of the bladder; and both may also act by direct communication of the inflammation to the bladder. A third cause of vesical catarrh is the use of the catheter; by which, as Althausen has already pointed out, lochial secretion may be conveyed into the bladder. The secretion of endometritis, blennorrhœa, or diphtheritic inflammation, may also be conveyed in the same way. And even when, as is the case at Freiburg, great care is taken to cleanse the urethral orifice, catarrh still follows catheterism, and in this case can only be ascribed to mechanical irritation. The course of simple vesical catarrh was found always to be rapid and mild. Albuminuria may also attend general catarrh of the urinary passages, with pyelitis. In rare cases, this is idiopathic; but generally it arises from extension of the vesical disease through the ureters or through the retro-peritoneal areolar tissue. The cases of pyelitis, characterized by rapidly supervening fever, pain in the loins, and the presence in the urine of epithelium from the renal pelvis, all ended favourably in a few days. In a third class of cases, albuminuria may arise from disturbances of the circulation; and fourthly, diseases of the parenchyma of the kidneys in childbearing women may be masked, when present, by vesical catarrh; or they may be produced through extension from the bladder, or may arise from stasis of the urine or from pyæmia. During pregnancy, albuminuria may have the same anatomical origin.—*Brit. Med. Journal*, Dec. 7, 1872, from *Centralblatt für die Med. Wissenschaft*. No. 20, 1872.

62. *Results of Pregnancy in Primipara of Advanced Age.*—Drs. COHNSTEIN and AHLFELD have given the histories of 500 primiparæ, whose ages varied from thirty to fifty years. They show that pregnancy in these women was attended with more numerous accidents than in young primipara. Operative interference is much oftener necessary and more dangerous; and the mortality in their children is also greater.—*Gaz. Hebdom.*, 21 Feb. 1873, from *Archiv für Gynæcologie*, bd. 4, heft 3, 1872.

63. *Ovariectomy followed by Twin Pregnancy.*—Dr. OLLIER, of Orleans, relates a remarkable case of a woman who had been four times pregnant, who had been three times tapped for ovarian dropsy, and afterwards subjected to ovariectomy; the tumour had no adhesions. Three months after the operation this woman became pregnant, and at full term was delivered of fine twins.—*Gaz. Hebdom.*, 21 Feb. 1873, from *Revue Méd.-Française et Etrangère*, 28 Dec. 1872.

64. *Intrauterine Injections.*—Dr. ROBERT BARNES, in an instructive article in the *British Med. Journal* (Jan. 11, 1873) observes that the treatment of morbid conditions of the body of the uterus by intrauterine injections calls for earnest discussion on account of its utility and dangers. Almost every author, he adds, who has written upon the subject refers to cases of accidents attending intrauterine injections ranging from severe pain to shock, collapse, metritis, perimetritis, and death. After referring to a number of cases which illustrate the conditions of danger, he points out the precepts to be attended to to avoid these dangers.

“The great object aimed at,” he says, “is to avoid or lessen the risk of the fluid running along the tubes. This it is sought to attain—1. By securing free dilatation of the cervix uteri before injecting, so that the fluid may readily run back into the vagina. For this purpose the preliminary use of laminaria-tents is advised. 2. By using only graduated quantities of fluids, and injecting very gently and slowly. 3. By using a double canula, so as to secure a return-current. To effect this the more surely, the openings of the canula at the uterine end are made at different levels.

“I have not much faith in the double canula. The end which should serve for the return-current is liable to be choked. The preliminary free dilatation of the cervix, and the use of gentleness in propelling the fluid, should never be omitted; but I do not believe that the observance of these precautions is an absolute guarantee against accidents. It is probable that the mere forcible impact of any fluid striking upon the inner surface of the uterus, especially upon the fundus, may cause severe pain and prostration. Since nothing is gained by forcible injection, this consideration affords additional reason for injecting with all possible gentleness; hence it is well to use injecting-pipes having lateral openings of very fine calibre, so as to ‘pulverize’ the liquid.

“I strongly advise not to use injections at all in cases of marked flexion of the uterus. Even if we dilate the cervix first by tents, and maintain the uterus erect during the injection, we cannot always be sure that the flexion will not be reproduced, so as to prevent the issue of the fluid; and it must not be forgotten that it is especially in these cases that the uterine cavity is likely to be enlarged, and the Fallopian tubes dilated.

“The general conclusion at which I have arrived, is to restrict the use of intrauterine injections within the narrowest limits. I rarely employ them now, except in cases of urgent danger from menorrhagia.

“We may obtain almost all the advantages that injections are capable of giving by other means. For example, the same agents which are useful in the form of solutions for injection, may be employed either by swabbing, or solid, or in the form of ointment. Thus, where the use of chromic or nitric acid, or perchloride of iron, or iodine, or bromine is indicated, these agents can be applied soaked on a sponge or piece of cotton, or on a glass or hair pencil, the cervix having previously been well dilated. Nitrate of silver is far better applied in the solid form: even then it is liable to cause severe colic. The risk of this may be lessened by reducing the caustic, by fusing it with an equal part of nitrate of potash. The ordinary way of using the solid nitrate of silver—that is, by holding a piece of the stick in a forceps or porte-crayon—is objectionable. The piece may fall out or break, and a fragment left behind in the cervix or body of the uterus may give rise to intense agony, and even metritis. To avoid this accident, I have for many years adopted a contrivance I learned from Sir Benjamin Brodie, who armed the ordinary probe by dipping the end into nitrate of silver, fused in a watch-glass over a spirit-lamp. I use special probes of platinum or silver, mounted on handles of convenient length. These

probes may be curved to follow the course of the uterine canal. This is far the best way of applying nitrate of silver to the os and cervix uteri; and it is the only safe way of applying it to the interior of the uterine cavity. The armed end of a probe may be passed into the uterus without the speculum, although the aid of this instrument is sometimes convenient. For example, unless the armed probe be protected by a canula, the caustic will first touch the vulva and vagina in its passage, which is apt to leave unpleasant effects, and the guiding finger of the operator will be stained.

"One of the most widely useful topical applications to the mucous membrane of the cervix and body of the uterus is sulphate of zinc. The value of this agent, when applied to the relaxed or morbid mucous membrane of the vagina in the form of injections, is familiarly known; how to apply it to the uterine mucous membrane is, therefore, a matter of great interest. This has been accomplished by Messrs. Johnson, the well-known assayers, on the suggestion of Dr. Braxton Hicks, who prepared small cylindrical sticks of fused sulphate of zinc weighing three and five grains. These can be carried quite into the uterus without having touched the vagina by the way, by means of a canula, first made on my design by Messrs. Weiss, and now generally sold by instrument-makers. It consists of a silver canula of the size of a No. 8 or 9 catheter, gently curved, open at the end, and supplied with a stylet or piston. The stick of sulphate of zinc or other material is placed in the uterine end of the canula; the instrument is then passed into the uterus just as the uterine-sound is passed, the patient lying on her left side; and the operator's finger, placed on the os uteri, guides the instrument. It is a great advantage of this contrivance, that the use of the speculum is quite unnecessary after it has aided in establishing the diagnosis which supplies the indication in treatment. When the instrument has gone the proper depth, the piston pushes out the stick, and the instrument is withdrawn, leaving the stick to dissolve. This it soon begins to do, and, by its speedy effect in constringing the mucous membrane, it keeps itself *in situ* until it is completely dissolved.

"Nitrate of silver, reduced by admixture with nitrate of potash, may be used in the same way; so may persulphate of iron, but this should be considerably reduced. When used nearly pure, I have known it to cause severe colic and bleeding.

"A most precious way of applying astringents, caustics, solvents, or alternatives to the interior of the uterus, is in the form of ointment or *plasma*. In this way almost any substance can be applied. Where grease is objectionable as a vehicle, a *plasma* of suitable consistence may be made by aid of glycerine or other matters. In this form we may use substances which cannot easily be applied in any other way. For example, we can hardly use bromine, or iodine, or mercury, in a solid shape; and to use them in liquid form is open to the objections already discussed. Almost anything can be made into an ointment or *plasma*, and thus we get a complete practical command over a large range of useful agents.

"To introduce ointment into the cavity of the uterus, Messrs. Weiss have made from my design a very convenient instrument, also capable of being used like a sound without the speculum. The instrument is easily charged by dipping it into the ointment—a sufficient quantity of which is carried into the uterus, and, by pushing up the piston, is deposited there.

"If it be desired to apply a powerful liquid caustic, as chromic acid or strong bromine, to the interior of the uterus, this can be done by the ointment-carrier. A few shreds of asbestos may be packed in the space between the eyelet-holes and charged with the fluid. On ramming down the piston, the fluid will be squeezed out.

"In discussing the action of powerful styptic injections in arresting flooding after labour, the conditions under which the practice I have recommended is indicated have not always been accurately appreciated. The great agent, of course, in stopping hemorrhage, is the constriction of the uterine vessels by the muscular wall in which these vessels run. All the ordinary means of arresting hemorrhage are aimed at producing muscular contraction. But muscular contraction depends on nervous power. Thus cold, grasping the uterus, intro-

ducing the hand, galvanism, all depend for their efficacy upon the spinal cord being able to respond to the peripheral call. When, therefore, these means prove sufficient, the inference is *generally* warranted that the case, although serious, is not desperate. The condition is very different when the excitomotor function is suspended; when neither by peripheral excitation, nor by centric stimulus, the nerve-force can be drawn or sent from the spinal cord to the uterus in sufficient intensity to cause contraction. At this point, unless the bleeding is arrested by syncope, or by temporary enfeeblement of the circulation, the patient is in the most imminent danger of death. The slightest shock or disturbance will extinguish the flickering spark of life. Under such circumstances I have known death follow, to all appearance immediately caused by, the injection of cold water, or passing the hand into the uterus. If, instead of cold water, we inject a solution of perchloride of iron, the same catastrophe may ensue. Is it more likely to ensue? Very careful observations are required before this question can be answered in the affirmative. People are apt to think that cold water is so simple a thing that it cannot do any harm. But if it cannot do any harm, is it not probable that it is, under the conditions discussed, equally powerless to do any good? Harmless remedies, as a rule, fail in great emergencies. Now, cold water fails not because it is harmless, for the shock and depression which it causes are extremely dangerous; but it fails because, nervous power being exhausted, it cannot excite uterine contraction, and it has no other virtue in arresting hemorrhage.

"Here, then, it is that styptics come to the rescue. The emergency is extreme, and would be desperate, but for the new power invoked. If blood be still running, it is instantly seized at the mouths of the vessels, which become sealed up by coagula. It also constricts the inner surface of the uterus, and thus further closes the vessels. The system then has time and opportunity to rally, and by and by the contractile power returns. In estimating the relative value, then, of cold water and perchloride of iron, we must reflect that iron acts and saves life when water is inert or injurious. If occasionally death follows, and is apparently accelerated by, the iron injection, we have, on the other hand, to remember that it was used as a last resource, when the patient was likely to die even if nothing were done, and that even under these unpromising conditions *many lives, to all appearance doomed, have been saved.*

"The great lesson to learn is to take courage to use the styptic in time; that is, before the vital power has sunk too low. It was not to be expected that a remedy powerful enough to save under the last extremity should be altogether free from danger. But I have seen so many women bleed to death, and have seen so many saved by the timely use of the iron injection, that I am much more afraid of the bleeding than of the remedy.

"In some cases, there is reason to believe that the iron enters the uterine vessels. I have known intense pain in the uterus follow immediately on the injection. How is this explained? If blood were present in the vessels, it is a chemical necessity that contact with the iron would cause coagulation. I infer, then, that in some cases the vessels are for a time nearly empty; and that there is a certain amount of suction-action induced by the relaxed state of the uterus, and by the lateral or semiprone position of the patient. I would therefore urge that the patient be placed on her back, and that the uterus be grasped firmly between the two hands of an assistant during the injection.

"In some cases, it is easy to carry a swab of sponge soaked in the iron solution into the uterus. In this way probably some of the risk attaching to injection is avoided. The persulphate of iron, which is preferred by our American brethren, may have its advantages. Its styptic force is probably greater. It may be used in the form of one part of the liquor ferri persulphatis of the *British Pharmacopœia* to six or eight of water. The proper strength of the perchloride solution is one in ten."

65. *Extirpation of the Entire Uterus for Inversion.*—Dr. M. BARBA records (*Il Morgagni*) a case of this. The patient was aged 25, and had had two children. The first labour was natural, but the second was too rapid; *inversio uteri* took place, and all attempts at reducing the organ failed. Several at-

tacks of hemorrhage supervened; the slightest touch, sexual intercourse, or mental emotions, brought on flooding. The patient was reduced to a condition of emaciation, when Dr. Barba determined to remove the uterus, which he did, notwithstanding the risk of hemorrhage, peritonitis, lesions of the intestines, etc. He was eminently successful. Hemorrhage was easily stopped, scarcely any peritonitis occurred, and the patient left the wards entirely cured on the twenty-second day after the operation. Dr. Barba made use at first of Chassaignac's linear écraseur, and finished the operation with a metallic ligature. Examination of the specimen showed that the entire uterus had been removed with the exception of a very small portion of the os.—*Lancet*, Feb. 8, 1873.

66. *Treatment of Prolapsus Uteri without Mechanical Agency.*—Dr. ANDREEF recommends, as having been successful in several cases of prolapsus uteri, the local application of a tincture of iodine. "He was induced to try this method by observing that in certain cases iodine locally applied had an effect on the ligaments of the uterus, causing them to pass from a relaxed into a normally firm state. His directions for carrying out the treatmeat are chiefly the following: Before beginning the treatment, all other diseases of the uterus should, as far as possible, be removed, because the iodine, acting, for instance, on ulcerated surfaces, is apt to induce serious inflammation. Previous to the operation, the uterus should be replaced, and the patient should continuously retain the horizontal position till after at least two applications. At first only a small quantity, and a dilute solution of iodine in alcohol should be used, about half a drachm of a solution made of equal parts of the tincture and alcohol, and the dose and the strength should be gradually increased, on successive applications. The solution should be painted on to the arch of the vagina around the neck of the uterus, and not less than three days should elapse between the successive operations. During the period of treatment, the cold vaginal douche (77° F.) should be used several times daily, and continued for some time after the local application has ceased. The bowels should be kept free throughout the period of treatment."—*Glasgow Med. Journ.*, Feb. 1873, from *Virchow's Archiv*, Aug. 1872.

67. *Flexions and Versions of the Uterus, with Mechanical Treatment of Uterine Deviations.*—In an exhaustive article published on the above subject, by Dr. B. S. SCHULTZE, in the *Archiv für Gynäkologie*, the author puts down various conclusions which may be summed up as follows: 1. The normal position of the empty uterus is anteflexion or anteversion. When a woman is in a standing position the posterior surface of the uterus is turned upwards. 2. Anteversion and anteflexion must be regarded as pathological conditions only when the uterus is fixed in its vicious position, or limited in the movements which are communicated to the organ. 3. Thickening and shortness of Douglas's ligaments (the habitual consequences of parametritis) constitute the usual causes of the persistence of anteversion or abnormal exaggeration of anteflexion. 4. On the other hand, the lengthening of the same ligaments (through muscular weakness of the *retractores uteri*) necessarily leads to retroversion and retroflexion, of which it is the most frequent cause. 5. The line of flexion of the uterus follows exactly the primarily anterior or posterior surface of the organ. If the body of the flexed uterus is more or less deviated to the right or left, almost always there exists at the same time a rotation of the organ on its axis. 6. Pressure exerted on the abdominal viscera increases the following deviations—normal anteversion, or anteflexion of the empty uterus, abnormal flexion backwards (through posterior fixation), retroversion and retroflexion through laxity of Douglas's ligaments. 7. Uterine catheterism does not suffice for recognizing the normal situation of the organ, and the direction of its deviations. Palpation with both hands, properly effected, is a safer way of making out the diagnosis. 8. Persistent anteversion and anteflexion of the uterus can be combated with benefit only by the help of revolving agents that tend to cause the disappearance of the exudata which maintain the uterus in its vicious position. 9. Retroversions and retroflexions, whilst they are yet

reducible, must be treated by means of the hand, and not of the uterine sound; but in the greater number of cases it becomes necessary to have recourse to mechanical means for maintaining the uterus in its normal position—namely, slight anteversion. 10. The only rational means of overcoming displacements of the uterus backwards is retroposition of the vaginal portion. The innumerable intra-uterine pessaries used for the purpose do not generally contribute much to that effect; but the use of Dr. Schultze's modified vaginal pessary produces this result: when the vaginal portion is fixed behind intra-abdominal pressure maintains the uterus in a position of normal anteversion. 11. Pressure exerted by the abdominal viscera is not capable of modifying flexion. When in such cases of flexion pain is abated by retroposition of the vaginal portion, it may be necessary to add an intra-uterine sound to the vaginal pessary.—*Lancet*, March 1, 1873.

68. *The Placenta in Gastrotomy.*—An interesting discussion on the proper management of the placenta in cases in which gastrotomy is performed in extra-uterine foëtation, recently took place at the Obstetrical Society. Dr. Meadows narrated a case of gastrotomy for extra-uterine foëtation. An attempt was made to remove the placenta; this was followed by an uncontrollable hemorrhage which ultimately proved fatal. Dr. Meadows laid it down as a rule that in all future operations of the kind the placenta should be left untouched, to come away with the discharge. In the discussion which followed, Dr. Barnes stated that Dr. Meadows was mistaken in supposing that this suggestion was new, and in a subsequent note he went into the literature of the subject. He stated that—

1. A perusal and comparison of the recorded cases of gastrotomy in extra-uterine gestation could not fail to convince the reader that the attempt to remove the placenta had proved disastrous, whilst leaving it alone had been followed by fair success.

2. Most of the recent operators, acting on the conclusion thus drawn, had taken care not to touch the placenta.

The latter statement is fully borne out by the recorded cases which Dr. Barnes has collected; and it may be considered as an established fact that, both in primary gastrotomy, in which the operation is performed in the hope of saving the foëtus, and in secondary gastrotomy, in which it is postponed till after the death of the foëtus, the placenta is bound down to the parts to which it is attached by such intimate and firm adhesions that no attempt at its removal is justifiable.—*London Medical Record*, Jan. 15, 1873.

## MEDICAL JURISPRUDENCE AND TOXICOLOGY.

69. *Action of Cobra Poison.*—Dr. FAYRER, who has made more experiments with cobra poison than any other person, and whose experiments have been conducted in a careful and conscientious manner, states that (*Indian Med. Gaz.*, Jan. 1, 1873) "the action of cobra poison, evidently in some, if not in all respects, resembles that of the curara or wourali, which kills by paralyzing the peripheral distribution of the motor nerves.

"Animals so poisoned have been recovered by artificial respiration, after being for hours in a state of seeming death. I do not yet feel at all certain whether cobra poison acts on the nerve-centres alone, or on the peripheral extremities, as in curara: perhaps it may be a combination of both. But it appears to me that this method of sustaining life by artificial respiration, which might be done in ordinary bites, offers the most reasonable prospect of enabling the patient to live until the excreting organs shall have eliminated the poison from the system. I at the same time cannot but express my fear that irreparable mischief may have been done by the poison, which may prevent recovery in cases where severe poisoning has occurred.

"I hope to pursue the subject further; meanwhile I believe that the most rational ground of hoping for relief is indicated."

70. *Treatment of Poisoning by Hydrate of Chloral.*—Dr. ERLENMEYER, Jr., remarks that the quantity of hydrate of chloral required to produce poisonous symptoms is undetermined. The smallest quantity known to have produced poisoning is two and a half scruples; while, on the other hand, as much as 460 grains has been taken without danger. The symptoms of poisoning by chloral are, diminished frequency of respiration, redness of the conjunctivæ, contraction of the pupils, lividity of the lips, and falling of the lower jaw: the state of the pulse has varied very much in several cases. The most important indication is the removal, as quickly as possible, of the chloral remaining in the stomach, or its dilution by water containing tea, coffee, or rum. The second indication is to restore the respiration. Not much benefit is to be expected from the use of strychnia, physostigma, morphia, camphorated ether, or ammonia, which are supposed to act as antitoxides to chloral. Transfusion of blood may perhaps be found useful, as it has already been in poisoning by chloroform.—*Brit. Med. Journ.*, Nov. 9, 1872; from *Med. Chir. Rundschau*, Oct. 1872.

71. *Poisoning by Carbolic Acid; Recovery.*—Dr. MOSLER of Greifswald has related (*Deutsch. Archiv f. klin. Med.* X. 1) the case of a man who drank in place of his accustomed glass of "schnaps" one containing a mixture of between two and three drachms of carbolic acid. He immediately fell insensible, and was convulsed. When Dr. Mosler saw him eighteen minutes afterwards, the extremities were cold, the pulse scarcely perceptible, the heart's action irregular, the breathing stertorous; consciousness was lost, and he was in a state of intense trismus—in fact, he appeared to be moribund. Dr. Mosler immediately had his mouth held open by a wooden gag, and poured warm water into the stomach through a tube; he then fixed an India-rubber pipe to the end of the tube, raised the patient, and bent him somewhat forwards; this was at once followed by the escape of a large quantity of fluid smelling strongly of carbolic acid. As consciousness did not return, Dr. Mosler, supposing that some of the carbolic acid had probably entered the blood and was acting on the brain, bled the man to the amount of about a pint. Consciousness then re-turned; the pulse became stronger and the breathing more tranquil. The blood that was removed had an odour of carbolic acid. For some days the patient had irritation of the throat and slight gastritis; but was dismissed cured on the eleventh day.

72. *Attempted Suicide with Petroleum.*—In No. 6, for 1872, *Mittheil. d. Aerztl. Vereins in Wein*, J. STEININGER relates a case in which a widow lady, 45 years of age, in an attempt at suicide, swallowed a pint of merchantable petroleum. What is remarkable, but slight indications of intoxication ensued; there was only slight pain in the region of the stomach, and but little febrile excitement. From the entire surface of the body was exhaled a strong odour of petroleum, while the breath was entirely free from it. It is somewhat curious that the urine received in a glass vessel presented floating on its surface a layer of petroleum 50 ccm. in thickness, not as a secretion of the kidneys, but as the effect of a kind of mechanical infiltration. The urine gave a slight alkaline reaction, and contained in every 1000 parts one of albumen, and was rich in pus and epithelial scales. For six days the smell of petroleum was given out from the patient's skin. Entire recovery finally ensued. In the outskirts of Vienna, Dr. S. remarks, petroleum is drunk by the common people in the same way and for a similar purpose as ardent spirits is by others.—*Centralblatt f. d. Med. Wissenschaften*, July 13, 1872. D. F. C.

73. *Asphyxia from the Vapour of Charcoal.*—M. GREHANT, in a communication made to the Academy of Sciences, strongly insists upon the utility of artificial respiration in grave cases of asphyxia caused by the inhalation of the vapour of burning charcoal.—*L'Union Médicale*, Feb. 8, 1873.

## AMERICAN INTELLIGENCE.

## ORIGINAL COMMUNICATIONS.

*Fifty-eight Lipomas in one Subject.* By ROBERT P. HARRIS, M.D., of Philadelphia.

In making an examination of a gentleman affected with hydrocele, my attention was attracted by several fatty tumours upon his thighs, and I was led to inspect his entire person, by which it was ascertained that there existed no less than 58 specimens, varying in size from a pistol bullet to a large watch, which were distributed as follows: Right arm, 2; forearm, 8; left arm, 3; forearm, 14; right thigh, 11 small ones; left thigh, 14 large ones; back of pelvis, 6.

The largest one was in the last-mentioned region, and measured about three inches across. They were all flat and discoid, very loosely attached, and could easily be turned upon edge for examination by transmitted light, when they were found to be highly translucent.

The subject of this multiplicity of fatty tumours is a merchant of middle age, tall and muscular, but remarkably free from the ordinary areolar fat. His health is excellent; he lives in a mountainous region, and most of his life has been engaged in active out-door work. He has no sensation in the lipomas, except during the incipiency of their formation, "when there is a sharp stinging feeling, as though something had given way under the skin."

It is questionable whether any of these tumours will ever attain a very large size, as is not uncommon with lipomatous growths, for they appear disposed to increase by number, rather than individual growth. They are for the most part arranged in a linear direction, as though their appearance was due to a peculiar influence exerted by the nervous system, as in some forms of cutaneous eruptions; there being nine of them in a row on the left forearm below the inner condyle of the humerus. It is somewhat remarkable that there are no tumours upon the antero-lateral faces of the neck, in the supra-clavicular fossæ, deltoido-bicipital sulci, or upon the dorsum scapulæ, all common seats of such deposits. Fortunately for the gentleman, he has no tumour but what is concealed by his clothing, and is not inconvenienced by the position of any one.

The disease in this case is not so much the presence of abnormal growths, as the existence of their determining force. Aside from the dangers of their extermination, an experiment which has in some instances proved fatal, it would not eradicate the disease, but only tend to the production of new manifestations of its existence. Spontaneous removal sometimes takes place in cases where the disposition to their formation has by some mysterious effort of nature been arrested and a contrary one substituted for it. This appears in some cases to be due to the changes resulting from advancing years.

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*How to Prevent Paroxysmal Cough.* By JOHN STOCKTON HOUGH, M.D., of Philadelphia.

The writer, at the age of 20, while a medical student, took the hooping-cough, and the abdominal tenderness occasioned by the almost inces-

sant coughing was so severely painful that it was necessary, in addition to the usual remedies, to resort to some method to lessen the effect of the diaphragmatic succussion, or prevent the paroxysm of cough. The former was in some degree alleviated by placing the arms across the abdomen and bending the body as far forward as possible, thus making considerable compression of the abdominal walls. But this last procedure did not afford sufficient relief; and at the time of a paroxysm the fortunate discovery was made that, *by coughing out with a strong expiration, and immediately following it by a long deep inspiration through the nostrils*, succeeded by slightly hurried breathing through the nostrils alone (keeping the mouth tightly closed from the time of the first cough), the paroxysm was generally prevented—rarely coughing more than once, instead of six to twelve times, as was the case when this precaution was neglected.

This fact seems to favor the theory of reflex irritation of the fauces, from sudden access of cold air at the gasping inspiration usually succeeding the first cough, as the cause of the paroxysm; while breathing through the nostrils allows of the air being warmed and moistened by contact with a mucous canal five or six inches in length.

It is unfortunate, for the application of this remedy, that the majority of those suffering from paroxysmal cough are too young to be taught *how to cough*; but I cannot think they suffer a tenth part as much from abdominal tenderness as those who are old enough to apply it, which latter—if the author's case were not above the average degree of severity—will gladly avail themselves of a remedy, unique in its effect, and so easily applied, to relieve them of their excruciating agony.

2003 WALNUT STREET, PHILADELPHIA, Feb. 12, 1873.

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*Removal of an Encysted Tumour of the Neck weighing over one and a half pounds.* By JOHN S. DAVIS, M.D., of Beatrice, Nebraska.

As the literature of tumours of the neck is very meagre, I report the following case as of some interest to the profession, showing to some extent that operations may be performed with safety for their removal.

J. D., aged 35, a hunter, in the enjoyment of good health, presented himself with a large tumour occupying the whole space, bounded above by the lower border of the inferior maxillary, below by the clavicle, behind by the trapezius muscle, and in front by the trachea. The origin of the tumour was attributed to a blow received about fifteen years previously. The tumour had remained dormant, not increasing in size until within two weeks of my seeing him. During that short space it had increased so rapidly as to encroach on the trachea and oesophagus, rendering respiration and deglutition very difficult. He has lost sixty pounds of flesh during that period of time. I diagnosed encysted tumour of the neck and decided on its removal, first informing the patient of the danger, and obtaining his permission for the operation. I made an oblique incision extending from the angle of the inferior maxillary to the upper border of the clavicle about midway, dividing the integument, cellular tissue, and platysma myoides muscle, whereby the sterno-cleido was exposed, under which the tumour was situated. As that muscle could not be pushed aside, I divided it transversely, thereby bringing into full view the tumour, which was bound down by numerous adhesions, and vessels were ramifying through it in all directions. Owing to its close proximity to the great vessels of the neck, I was compelled to operate very slowly, my fingers quite a number of times resting on the great carotid. The hemorrhage was so very profuse that I was afraid that my patient would sink under the operation. I

ligated quite a number of vessels, and succeeded in stopping the hemorrhage. After breaking down all adhesions I removed the tumour intact. It weighed one and a half pounds; its contents were coffee-coloured. The after-treatment was very simple, and my patient made a good and quick recovery, being able in eight days to go to his home, fifty miles distant.

*Two Cases of Aphonia.* By GEORGE N. MONETTE, M.D., Visiting Physician to the Charity Hospital, of New Orleans, La.

CASE I. *Aphonia supervening on an attack of dysentery, complicated with right hemiplegia and amnesia.*—J. R. Irish, æt. 35, was admitted into Charity Hospital August 12th, with acute dysentery of ten days' duration. I at once ordered the following prescription: R. Bismuthi subnitrat, 3ss; morphiæ sulphatis, gr. ij; aquæ laurocerasi, 3j; mucilaginis acaciæ, 3vj. A tablespoonful to be taken after each liquid stool. August 13th, greatly benefited, he said, from first dose. Prescription repeated, which entirely relieved him within three days. All medicines were discontinued for several days, and I directed too that he should have only very light fluid ingesta with dry soda crackers well chewed before final deglutition. About the sixth day subsequently to his admission, after a violent tenesmic effort at stool, he felt as if he should faint; suffered from vertigo, weakness, and a momentary inability to stir. There was no acute pain attendant, but he could not utter a word, and his right side was paralyzed.

On the second day after the paresis I ordered the following prescription: R. Liquoris strychniæ, 3ij; potassii iodidi, 3ij; spts. lavandulæ comp. 3j; syrapi zingiberis, aquæ, 3iij. Misce et Signa; tablespoonful to be taken three times daily, half an hour after meals. I urged him to frequently attempt to articulate. Within three days the patient could articulate "yes" distinctly, but was unable to utter two words in succession. Phonation was gradually restored, and by dint of persevering in this treatment there was entire recovery of each of the impaired faculties; amnesia cured, phonation restored, paresis almost wholly relieved.

CASE II. *Aphonia following severe cerebro-spinal concussion, complicated with loss of gustation, impaired audition and vision; amnesia, and dysæsthesia of lower extremities.*—W. J. S. was admitted into hospital October 6th, 1872. He had fallen, three days previously, from a scaffold, a distance of fifteen feet. He remained in a semi-comatose condition for 24 hours or more, with loss of phonation, gustation, impaired audition and vision, and volition of lower extremities, and somewhat perverted sensation.

When first seen by me he could scarcely speak in an audible whisper, and his hearing was very dull; his temperature fluctuating, subsequently profuse perspirations, which somewhat alarmed him. There was some dribbling of urine, but no distension of bladder. Enjoined the most perfect quiet, and ordered the same compound as in Case I., conjoined with the best diet the hospital could afford; soft-boiled eggs, milk-punch, or eggnog, with topical application of a cantharides blister to back of the neck, just beneath the occipital protuberance, which gave great relief, and was repeated on the next alternate day. One week's treatment justified the assumption of a favourable prognosis, as day after day returning functions were well evidenced, till finally cured.

After he had sufficiently regained each of his faculties, I ordered 10 grain doses of the potassio-tartrate of iron, three times daily, in solution, and discontinued the original prescription.

## DOMESTIC SUMMARY.

*The Comparative Merits of Craniotomy and the Cæsarean Section in Pelves with a conjugate diameter of two and a half inches.*—Dr. JOHN S. PARRY discusses (*Am. Journal of Obstetrics*, February, 1873) with learning and ability this question, and gives the following as his conclusions:—

1. If gestation has advanced to the full term and the conjugate diameter of the superior strait be two inches and a half, craniotomy affords the mother no better chance for recovery than Cæsarean section; and if the diameter be two inches or less, exclusive of the soft parts, it is the duty of the accoucheur to perform gastro-hysterotomy rather than craniotomy.

2. The recorded histories of cephalotripsy in such cases afford us no evidence that it will compete with the Cæsarean section in safety, while French and German experience seems to show that cranioclasm is both more safe and more efficient.

3. English accoucheurs, who are the firmest supporters of cephalotripsy, have not yet recorded a sufficient number of facts to controvert this position.

*The Treatment of Whooping-cough by Quinia.*—Prof. BINZ, in a paper on "The Use of Quinia in the Diseases of Children," published in the No. of the *American Journal of Obstetrics* for May, 1870, advocated the use of quinia in pertussis, and stated that in his hands it had accomplished valuable results. Prof. B. laid down the following rules for its administration: "It should be given in solution; the dose should not be too small, and should not be administered in a vehicle that will prevent it from coming in contact with the mucous membrane, in its passage through the pharynx;" and the neglect of one or all of these rules he considers the reason why other observers have seen no positive results from the use of this drug.

Letzerich, of Germany, advanced in 1871 the fungus theory of pertussis, and asserted that he had discovered in the expectorated mucus a form of fungoid growth which vegetates in the epithelium of the air-passages, and by its irritation causes the convulsive attacks of coughing. This theory seems to have additional strength given to it by the effect on the cough of therapeutic measures directed against the development of the fungus.

The statements of the efficacy of quinia in whooping-cough, made by Binz, have been indorsed by Breidendaech and Steffin,<sup>1</sup> and Dr. B. F. DAWSON, of New York, reports (*American Journ. of Obstetrics*, Feb. 1873) eighteen cases in which this remedy was used with very satisfactory results in curing the "whooping" chiefly; the cough, in many of the cases, lasting for some time after the whooping ceased, and which required the usual treatment for bronchial catarrh. He gives the following rules for the administration of the drug.

1. Give the quinia (sulphate or hydrochlorate) dissolved by acid in pure water only. For children under 3 years, from gr. v to gr. viii, and for older children and adults, from gr. x to xii to the ounce.

2. Give not less than a teaspoonful *every single* or, at the longest, *every two hours* during the day, and whenever cough comes on in the night.

3. Give nothing afterward, for some minutes, to destroy the taste or to wash out the mouth.

4. Continue giving it, notwithstanding the first doses may be vomited.

5. Be sure that the quinia is pure and thoroughly dissolved.

*New Mode of Treatment of Functional Dyspepsia, Anæmia, and Chlorosis.*—The following mode of treatment proposed by Dr. C. E. BROWN-SEQUARD for some cases of dyspepsia, chlorosis, anæmia, and nervous affections, caused by gastric disturbances or poverty of blood, has the merit of novelty. It "consists in giving but very little of solid or fluid food or any kind of drink

<sup>1</sup> See *Am. Journ. of Med. Science* for Jan. 1871, p. 268, and Oct. 1871, p. 544.

at a time, and to give these things at regular intervals of from ten to twenty or thirty minutes. All sorts of food may be taken in that way, but during the short period when such a trial is made, it is obvious that the fancies of patients are to be laid aside, and that nourishing food, such as roasted or broiled meat, and especially beef and mutton, eggs, well-baked bread, and milk, with butter and cheese, and a very moderate quantity of vegetables and fruit, ought to constitute the dietary of the patients we try to relieve. This plan should be pursued two or three weeks, after which the patient should gradually return to the ordinary system of eating three times a day.

"It is hardly possible to give more detailed rules as regards this hygienic mode of treatment. On the one hand I have found few persons willing or able to follow it fully. On the other hand, many patients, especially those who have no dyspepsia, do not need to take so minute an amount of food at a time. Besides, it is certain that the quantity of food required varies notably in different persons. Prof. John C. Dalton states that the entire amount of food needed by a man in full health and taking free exercise is: of meat, 16 oz. av.; bread, 19 oz.; fat, 3½ oz.; and of water, 52 fl. oz.; *i. e.*, about 2½ lbs. of solid food, and rather more than 3 pints of fluid. According to Dr. Edward Smith and other European hygienists, the amount of solid food and of water required each day is notably larger than that marked out by the able American physiologist I have named. My experience with the patients on whom I have tried the plan of feeding above mentioned, shows that the amount of solid food required by an adult is nearly always as follows: from 12 to 18 oz. of cooked meat, and from 18 to 24 oz. of bread. As regards the quantity of fluids I have allowed, it has always been notably less than the amount indicated by Dr. Dalton (3 pints), and by Dr. E. Smith (4½ to 5 pints).

"I hardly need say that in carrying out the plan I propose, attention must be paid to three points: 1st, the liking and the disliking of certain things by the patient; 2d, the importance of variety in food; 3d, the digestibility of certain things compared with others, digestibility which varies immensely in different patients. When I found that there was no disgust for a meat and bread diet, I ordered that roasted beef or mutton, with bread, be almost the only kinds of solid food taken. But most patients were either soon disgusted with this diet, or refused even to try it. Having ascertained this, I allowed the selection by each patient of his own dietary, insisting, however, that the quantity of cooked meat should be at least 12 oz. a day. The most varied diet as regards the kinds of food can be followed, however, under this plan as well as when one has only two or three meals a day. The only absolutely essential points are that the amount of food taken every 10, 15, 20, or 30 minutes be very small (from two to four mouthfuls), and that the quantity of solid food in a day be from 32 to 40 oz., or a little less when, instead of water, the patient drinks beef-tea or milk."—*Archives of Scientific and Practical Medicine*, Jan. 1873.

*On the Action of Rhus Venenata and Rhus Toxicodendron upon the Human Skin.*—Dr. JAMES C. WHITE, Professor of Dermatology in Harvard University, contributes to the *New York Medical Journal* (March, 1873) a very interesting paper upon the so-called poisonous action produced upon the skin of persons touching or approaching either the *R. toxicodendron* (popularly called poison-ivy, poison-vine, poison-oak), or the *R. Venenata* (commonly known as poison-sumach, poison-dogwood, poison-elder, poison-ash).

Writers have generally regarded the inflammatory affection of the skin provoked by contact with the plants or their emanations, as of an erysipelatous nature. Dr. White combats this opinion as erroneous, and says, the "observation of a few cases, as they present themselves in the practice of every physician, will satisfactorily establish the changes in the skin to be simply of an eczematous nature, although of so severe a type, in some cases, as to produce quite as marked deformity of parts as true erysipelas." In the many cases which Dr. White has observed he has found that in all the pathological changes of the skin were identical, differing only in degree of intensity and extent of distribution.

In a mild case, we find a slight erythema surrounding a papule or vesicle.

with a small underlying infiltration or exudation. These are all the phenomena observed, whether we have a single efflorescence or several individuals grouped together. Dr. White agrees with Prof. Maisch that toxicodendric acid is the principle to which the poison-oak owes its effects on the human system, and frames his therapeutics accordingly. "We have to deal with an acid, and the antidote for an acid is an alkali; that is, provided the salts thus found are not equally poisonous." Whether the salts formed with toxicodendric acid by ammonia, potash, and soda are poisonous, Prof. Maisch is in doubt, but speaking clinically he leads us to believe they are not, for he says that the application of solutions of ammonia seemed to be most effective in counter-acting the action of the acid. This is consistent with the popular reputation of solutions of saleratus and soda as remedies, and will explain the action of the soft-soap above-mentioned. These are true antidotes, but they can be of benefit only from their chemical action, and in this way. In the later stages, or, in other words, against the subsequent eczematous changes in the cutaneous tissues, they can do no good. The action of that most popular of all remedies in this affection, the solution of sugar of lead, is a mixed one, and seems to have been happily, though unwittingly, selected as an appropriate remedy in all stages. Toxicodendric acid precipitates from it an insoluble, and therefore harmless, salt, while its astringent action is well adapted, in many cases, to the relief of the inflammatory processes in the skin.

"The treatment of the later stages of *rhus*-poisoning, that is, of the eruption it produces, need not be especially considered, for it is mainly that of the corresponding varieties of ordinary acute eczema. It is seldom that the physician is called upon before the inflammatory process is well developed, so that there generally remains for him only the selection of the applications appropriate to a simple eczema of the same stage. In the great majority of cases I have found black-wash—calomel 3*j*, lime-water 0*j*—by far the best application to the affected parts, used as an evaporating lotion upon thin and old linen or cotton cloth, for half an hour to one hour at a time, two or three times a day. I have used in connection with it, to moist or excoriated parts, a powder of oxide of zinc 3*j*, starch 3*j*, or plasters of oxide of zinc or diachylon-ointment, as in the management of ordinary eczema. In the black-wash we have, possibly, three elements at work in our favor: first, the alkali as antidote, if it is of any avail at such periods; second, the action of cold from evaporation upon the local hyperamy; and, third, the astringent effect of the mercurial powder upon the diseased tissues. In all cases of poisoning, I have been entirely satisfied with its effects, however extensive in distribution or advanced in development the inflammatory condition of the skin. Only upon the thickened epidermal coverings of the efflorescences in the palms does it seem ineffectual. To these tardy and well-protected manifestations I apply solutions of corrosive sublimate, from one to two grains to the ounce of water, in the same way as the black-wash is used upon the other parts. By these means the eczematous process is checked and shortened, and the subjective symptoms greatly alleviated.

"Of any internal treatment of direct bearing upon the affection, I have never seen the operation or need. A simple and restricted diet in severe cases is, of course, to be observed."

*Enucleation of Uterine Fibroids.*—Dr. T. GAILLARD THOMAS exhibited to the New York Obstetrical Society (Oct. 3, 1872) a mass the size of a cocoanut, consisting of three fibroids which he had recently removed by enucleation. The woman, who was a patient of Dr. H. Moeller, had suffered for some months from excessive menorrhagia. When seen by Dr. Thomas, the uterus was found to be as large as at the fifth month of gestation; the cervix was found well dilated, and a large fibroid presenting, which, on examination, proved to be sessile, and attached posteriorly. The patient lying upon her back upon a table, Dr. Thomas proceeded to enucleate by cutting through the capsule of the tumour with scissors, and then insinuating a grooved steel sound under the capsule, which he separated as far as possible from its attachments. Traction was then resorted to, combined with powerful expression from above, which resulted in

the extrusion of a large mass in about forty minutes; another mass was felt above the one extracted, which was in like manner removed; traction then being made upon the capsule, it came away, having attached to it a still smaller tumour. There was very little hemorrhage. Opiates were given, and intra-uterine injections of carbolic acid were daily used. The patient did well for four weeks, though she now has a mild attack of phlegmasia dolens, from which she has suffered once before as a sequel to parturition. This is the sixth case in which Dr. Thomas has resorted to enucleation, in all of which the recovery has been perfect. He has, however, lost two cases in the preparatory treatment by sponge-tents. Dr. Thomas considers the operation in its results more formidable than ovariotomy.—*Am. Journ. Obstetrics*, Nov. 1872.

*Rupture of the Biceps Flexor Cubiti.*—Dr. SAMUEL ASHHURST records (*Phila. Med. Times*, January 11, 1873) the following example of this rare accident:—

“I. S., æt. 35, was admitted into the Episcopal Hospital, Philadelphia, July 26, 1871, suffering from a scalp-wound. He could give no very clear account of the manner in which he had been injured, merely stating that he was thrown from his wagon while driving, but did not think he had been run over. The scalp-wound was dressed, and he was put to bed. The next morning (July 27th) he complained of much soreness in his left arm, when, upon examination, a rupture of the belly of the biceps was at once apparent. On the anterior aspect of the arm there was a depression an inch and a half wide, into which the skin and subcutaneous tissues could be pressed to the depth of half an inch, and the ends of the torn muscle could be felt as thick lumps. Handling the arm caused great pain. Flexion of the elbow could be performed partially, with difficulty and suffering. There was hardly any evidence of injury to the neighbouring skin, further than slight ecchymosis, from which fact it seemed most likely that the rupture resulted from sudden and forcible muscular contraction rather than from the application of a crushing force, as at first sight supposed. Compresses were placed over the separated ends of the muscle, which were brought together by figure-of-eight turns of a bandage inclosing the whole extremity, and the limb placed in a sling.

“On August 4th the bandage was removed, and, although a slight indentation in the muscular substance was apparent, the patient was able to move the elbow freely and without pain. On August 7th all tenderness had disappeared, and, the scalp-wound having united, he was discharged.”

*Intra-ocular Enchondroma.*—DR. KNAPP presented to the New York Pathological Society (*Medical Record*, Jan. 1, 1873) an intra-ocular tumor, the first on record. The operation for its removal was performed in Baltimore, by Prof. Chisolm. The patient was a male aged 25. The enlargement first made its appearance at birth, when the sight was dimmed and a whitish appearance was noticed through the pupil. The tumor grew slowly but steadily, until the age at which it was removed. The deformity occasioned by its presence was very great. The operation was made after the manner of enucleation of the globe. The fifth day after the operation, hemorrhage occurred, which was stopped with some difficulty. On the ninth day there was another secondary hemorrhage of a more severe character. It so happened that it was impossible to control it during the whole night, and, the morning after, Dr. Chisolm was compelled to tie the common carotid, which stopped the bleeding. Three days after, the patient died of tetanic spasms. Dr. C. sent the specimens to Dr. Knapp, who reports the following results of a microscopical examination:—

The tumor consisted of three parts: 1, a fibrous enveloping capsule, from which septa run in different directions through the tumor; 2, a number of hard, round, or oblong nodes; and, 3, a softish fibro-granular substance lying on the lower side of the tumor, and extending between some of the harder nodes. Under the microscope, the enveloping capsule showed the structure of dense fibrous tissue like that of the sclerotic. The inner layers of the capsule were less dense, and interspersed with smaller and larger cells. The same structure, namely that of proliferating connective tissue, was seen in the fibrous

septa of the tumor. The hard nodes consisted of fibrous and hyaline cartilage, the fibrous prevailing over the hyaline variety. The soft granular portion was made up of proliferating connective tissue, in which islets of fibrous and hyaline cartilage were embedded.

With regard to the *origin and development* of the tumor, Dr. Knapp thought it most likely that it sprang from the inner layers of the sclerotic. The fibrous cartilage was formed by immediate conversion of connective tissue; that of the hyaline cartilage by the growth of clusters of hyaline cartilage cells strown into the connective tissue and fibrous cartilage; furthermore by the extension of the growing hyaline substance into the fibrous cartilage, and lastly by the immediate development of aggregated formative cells into cartilage. The latter mode played the main part in the growth of the tumor. Dr. Knapp added that a detailed description of this unique case of intra-ocular enchondroma, with illustrations, would appear in the first number of the third volume of the *Archives of Ophthalmology and Otology*.

*Trial of Mrs. E. G. Wharton.*—We have been favoured with some early sheets of a new edition of Dr. ALFRED TAYLOR's work on Medical Jurisprudence, which is now in the course of republication here, and extract from it the following remarks which have a bearing on the trial which has excited so much attention in this country:—

“Criminal trials for poisoning with tartar emetic in the *acute* form are rare. It is a poison which cannot easily be given in a large dose without producing speedily well-marked effects; and as vomiting is a common symptom, the poison is thus early ejected from the stomach. An extraordinary trial for murder by alleged poisoning with this substance took place at Annapolis, U. S., in December, 1871. Mrs. E. Wharton was charged with poisoning her friend, General Ketchum. The trial lasted fifty-two days, and an astonishing amount of scientific evidence was brought forward for the prosecution and defence, apparently owing to the high social position of the parties; for there is nothing, medically speaking, in the case itself that might not have been settled in forty-eight hours. The General died after a short illness, but the symptoms, taken as a whole, bore no resemblance to those observed in poisoning with antimony, and but for the alleged discovery of twenty grains of tartar emetic in the stomach after death, no suspicion of poisoning would have probably arisen. (See Guy's Hospital Reports for October, 1857, in which thirty-seven cases of poisoning with antimony are recorded.) The appearances in the body proved nothing for or against antimonial poisoning, and some physicians of experience deposed that symptoms and appearances were consistent with disease affecting the membranes of the brain and spinal marrow.

“On examining the chemical evidence, it appears that the process by sulphuretted hydrogen alone was employed, and a red-brown sulphide, resembling that of antimony in chemical properties, was obtained; but the quantity obtained as sulphide was only four-tenths of a grain, estimated as equivalent to *eight-tenths of a grain* of tartar emetic. Thus the chemical analysis brought out only a fraction of a grain, not amounting to one-twentieth part of the quantity said to be present; and no separation of antimony in the metallic state was made to corroborate the inference drawn from the precipitate produced by sulphuretted hydrogen. No chemical results were produced in court, although twenty grains would have allowed of the production of metallic antimony in a few minutes by copper, tin, zinc, and plantinum, or by Marsh's process. The evidence that antimony was really there was not satisfactory, and that twenty grains were present in the stomach was wholly unproved. The chemical evidence does not, therefore, conflict with the pathological evidence, for it failed to show with clearness and distinctness the presence and proportion of poison said to have been found. The jury upon such weak evidence properly acquitted the prisoner.”

Again, Dr. Taylor says:—

“Antimony in the metallic state is so easily procured from a small quantity

of material, by one or other of the above-mentioned processes, that on no account should this be omitted. The procuring of the metal may be made subsidiary to the procuring of the sulphide, as the metal can be easily oxidized and converted into the sulphide in a pure form, and obtained entirely free from organic matter. A reliance on a small quantity of a coloured precipitate from sulphuretted hydrogen alone, would be most unsatisfactory as chemical evidence."

It must be highly gratifying to Profs. Reese, Genth, and McCulloch, that the ground they took in the above-mentioned trial of Mrs. Wharton has been so fully sustained by one of the highest of living authorities on the subject.

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## C O R R E S P O N D E N C E.

### LETTER FROM MR. T. B. CURLING,

*President of the Royal Medical and Chirurgical Society of London.*

*To the Editor of the American Journal of the Medical Sciences.*

SIR:—Will you allow me to make some corrections in an article by Dr. Mason on *Venereal Stricture of the Rectum*, contained in the January number of your valuable Journal?

Dr. Mason, after referring to the first edition (1851) of my *Observations on Diseases of the Rectum*, states, "Mr. Curling, it would appear, is not a believer in the so-called Syphilitic Stricture." Had Dr. Mason consulted the third edition of this work, published in 1863, he would have met with the following passage at page 107: "Several cases of ulceration in the rectum, the origin of which must be ascribed to syphilis, have fallen under my notice, and this symptom is probably less rare than is commonly supposed. Syphilitic ulcers are usually large in size and often involve the deeper structures of the coats of the rectum; the result is, that the healing process is very apt to cause a serious contraction in the passage." He would also have found at page 112 a case in detail, headed "Syphilitic ulceration of the rectum cured, but terminating in a close stricture of the gut." The case was undoubtedly syphilitic, not chancreoid, the woman having, at the same time, painful nodes on the forehead, and on both shin-bones, besides other marks of syphilis.

Dr. Mason gives Mr. Allingham the credit of having proposed and first performed *lumbar colotomy* for inveterate cases of stricture of the rectum with ulceration, quoting from *St. Thomas's Hospital Reports* a case in which the operation was performed in November, 1867. I believe that I first suggested and performed the operation for relief in these cases, and in the *London Hospital Reports*, vol. iv., I published two cases of intractable stricture with ulceration, in which I performed lumbar colotomy in 1865. It is true that Mr. Allingham, though acquainted with these cases, has not referred to them.

I am, sir, your obedient servant,

T. B. CURLING.

LONDON, February 24, 1873.

## OBITUARY NOTICE.

HUGH L. HODGE, M.D., LL.D., Emeritus Professor of Obstetrics and the Diseases of Women and Children in the University of Pennsylvania, died at his residence, in Philadelphia, on the morning of February 26, 1873, in the seventy-seventh year of his age.

Dr. Hodge was born on June 27, 1796, at his father's house, in Water Street, Philadelphia; he came of that Scotch Irish Presbyterian stock, which has given so many good and great men to our country—a descent which, almost necessarily, implies a vigorous intellect, a strong, unyielding will, and great energy of character, combined with *religious* principles so deeply grounded that they seem innate to the blood. Dr. Hodge's grandfather was Andrew Hodge, who emigrated to this country in 1730, and was a well-known and successful merchant of Philadelphia; his father was Dr. Hugh Hodge, who served in the Continental army during the war for independence.

After peace was declared, Dr. Hugh Hodge practised his profession in Philadelphia; during the epidemics of yellow fever in 1793 and 1795, he was distinguished for his heroism and devotion, and, like so many other noble men of our profession, he fell a victim to his philanthropy, and died in 1798, leaving a widow and two sons; one of these sons was the subject of this notice; the other is Professor Charles Hodge, D.D., of the Theological Seminary of Princeton, N. J.

The mother, left in straitened circumstances, sacrificed everything to educate her sons.

Hugh L. Hodge, as a lad, was sent to the grammar school connected with the University of Pennsylvania, and in 1812 he entered the Sophomore class of Nassau Hall, Princeton, where he graduated, at the head of his class, in 1814. Beginning, immediately, the study of medicine, Hugh L. Hodge became the private pupil of Dr. Caspar Wistar; matriculated at the Medical Department of the University of Pennsylvania, following, at the same time, the practice of the Pennsylvania Hospital and the Philadelphia Almshouse; in 1818, he received the degree of Doctor of Medicine.

Dr. Hodge now resolved to go to India as surgeon of a vessel, hoping that, by the commercial ventures of the voyage, he would realize enough money to enable him, on his return, to visit Europe, and there continue his professional studies; in this, however, he was disappointed; he sailed in September, 1818, and returned safely in 1820. While in India Dr. Hodge saw many cases of malignant cholera—a disease at that time unknown either in Europe or America—and acquired a knowledge of its symptoms and treatment, which proved invaluable in the great epidemic of 1832; during this epidemic, Dr. Hodge was very active in the cholera hospitals, for which he received a vote of thanks from the city, and was presented by the authorities with a silver pitcher.

Returning from India, Dr. Hodge began the practice of his profession, and was elected one of the physicians to the Southern Dispensary, and afterwards to the Philadelphia Dispensary. In 1821 he commenced his career as a teacher of medicine, taking charge of Dr. Horner's anatomical class while Dr. Horner visited Europe. In 1823 Dr. Hodge became Lecturer on the Principles of Surgery, in the Medical Institute, in connection with Drs. Chapman, Dewees, Horner, Bell, Mitchell, Jackson, and Harris. This lectureship he exchanged for that of Obstetrics, on the resignation of Dr. Dewees from the Institute, in 1830. In 1823 Dr. Hodge was appointed physician to the Philadelphia Almshouse, and in 1830, Obstetrical Physician to the Pennsylvania Hospital.

After practising medicine for fifteen years, and teaching it for fourteen years, in November, 1835, Dr. Hodge was elected Professor of Obstetrics and the Diseases of Women and Children in the University of Pennsylvania, which position he filled for twenty-eight years; in 1863, in consequence of his failing vision, he resigned his professorship, and was made Emeritus Professor by the Trustees of the University.

When Dr. Hodge resigned his professorship, he generously presented to the Trustees of the University his very valuable museum, together with the whole of his collection used by him in illustrating his lectures, obtained at great cost, and the accumulation of the twenty-eight years of his incumbency; with the request that the whole collection should be kept distinct from the general museum of the school, and that it should always be under the curatorship of the Professor of Obstetrics.

It is difficult, in an article necessarily as brief as this must be, to do justice to Dr. Hodge as a teacher; his style was characterized by great purity, dignity, and earnestness; his intellect was too strong, and his experience too great, to permit him to follow blindly the theories or teachings of others, and, therefore, his lectures were markedly original, and he never hesitated boldly to differ from doctrines, though almost universally accepted, when he believed them to be false. The old Alumni of the University will recall with tender recollections the benign and intellectual countenance, the deep and manly tones of their beloved professor, as he earnestly endeavoured to impress upon them some point which he deemed of great importance.

For many years Dr. Hodge was so completely engrossed by the cares of practice and teaching, that he had no time to contribute to the literature of the profession; during his early professional life he was one of the editors of the *North American Medical and Surgical Journal*, being associated with Drs. Franklin Bache, Charles D. Meigs, B. R. Coates, and R. La Roche; this journal was organized and conducted by the members of the Kappa Lambda Society. Dr. Hodge contributed to it some original articles, and also occasional reviews. He also contributed a valuable article on aneurism to the *American Cyclopædia of Practical Medicine and Surgery*.

In 1860, Dr. Hodge published his work on *Diseases Peculiar to Women, including Displacements of the Uterus*; the object of this most valuable book, dedicated, as it was, to the Alumni of the University of Pennsylvania, was to present to them the views on the nervous diseases of women which he had for so many years taught in the halls of the University. The author desired to present not merely what he deemed a more correct theory and practice in inflammatory diseases of the uterus, but to insist that a very large proportion of the so-called cases of metritis are, in reality, but examples of *irritation*, where inflammation has subsided, or where it actually never existed; indeed, the chief object of the whole book is to exemplify the nature, consequences, and treatment of nervous *irritation* as distinct from *inflammation*. Convinced by long experience, the author shows that the uterus is involved in most of these complaints, and that its disturbances are very frequently dependent upon *displacements* of the organ, and hence the work is largely devoted to the subject of displacements of the uterus and their mechanical treatment.

In 1864 Dr. Hodge published his great work on obstetrics—dedicated to the memory of Thomas C. James and Wm. P. Dewees, the first and second professors of Obstetrics in the University of Pennsylvania. This volume, whether we estimate it by the learning, research, and care which its pages display, or by its original teachings and illustrations, or by the philosophical character, as well as great force and clearness of its instruction, must be ranked among the

first works on obstetrics ever issued from the American or foreign press. Dr. Hodge, in this book, gives his teachings as Professor of Obstetrics in the University of Pennsylvania for twenty-eight years; and the many thousands of the Alumni of the University who, during this long period, had the good fortune to be instructed by him, as well as those who have graduated since, will always turn with pride, pleasure, and profit to the noble work of their old professor.

But not only as an author did Dr. Hodge benefit his profession; he contributed many invaluable instruments to the surgery of obstetrics and female diseases; our space, however, will not permit more than mere reference to these. The lever pessary, one of Dr. Hodge's original conceptions, is now universally recognized as the instrument for the treatment of certain forms of uterine displacements. Like the forceps of Chamberlen, it has received innumerable modifications, none of which, however, are improvements; and the simple open and closed lever pessaries of Hodge will always remain the perfect types of the lever pessary. The Hodge eclectic forceps is so well known, that it would be useless to say of it more than that, in the great number of modifications which the obstetrical forceps has received, *none* are better, and few as good, as the Hodge modification. Hodge's compressores cranii and sharp and blunt craniotomy scissors are admirably adapted for the purposes for which they were designed.

After resigning his professorship, in addition to the preparation and supervision of the works alluded to, Dr. Hodge contributed some valuable papers on obstetrical subjects to this Journal, and, at the same time, was engaged in a very extensive practice in the treatment of female diseases; his successes were sometimes extraordinary, and patients came to him from all parts of the country.

In 1872 the title of LL.D. was conferred on Dr. Hodge by Nassau Hall, Princeton.

The last ten years of Dr. Hodge's life were busy years; he had passed the age when most men cease to work, and yet, save an infirmity of vision, his faculties were perfect. His form was erect, his step elastic, his hearing acute, while his intellect was as clear, and his sympathies as quick as ever; he occupied himself in practice, and in literary pursuits, and continued his professional engagements until the very afternoon of the day of his last illness; on this very day, too, he spent several hours preparing an article on cephalotripsy, at which he had been working for some weeks.

Dr. Hodge took great interest in the religious and philanthropic movements of the day, and was active in the affairs of the church of which he was a member, and most generous in his benefactions to it, and other good causes; but he enriched the medical profession, and did good to the world, not only by the books which he wrote, and the instruments he devised, but by a life and example that will not soon lose their influence. The great doctor, the learned professor, the man who was looked up to by the community in which he lived, and by the profession which he adorned, was, at the same time, the devout and humble believer—with the spirit and faith of a little child: though his praise was in all the churches, yet he esteemed *himself* among the least of the brethren.

On the 24th of February, after a busy day, during which he seemed in his usual good health and spirits, he was seized, near midnight, with nausea, faintness, failure of the heart's action and of respiration, and died twenty-six hours after his first attack, sustained, in his last hours, by that faith he had learned at his mother's knee—that strong faith he had inherited from a pious race, which, generations before, had sacrificed country and home for religious freedom.

R. A. F. P.

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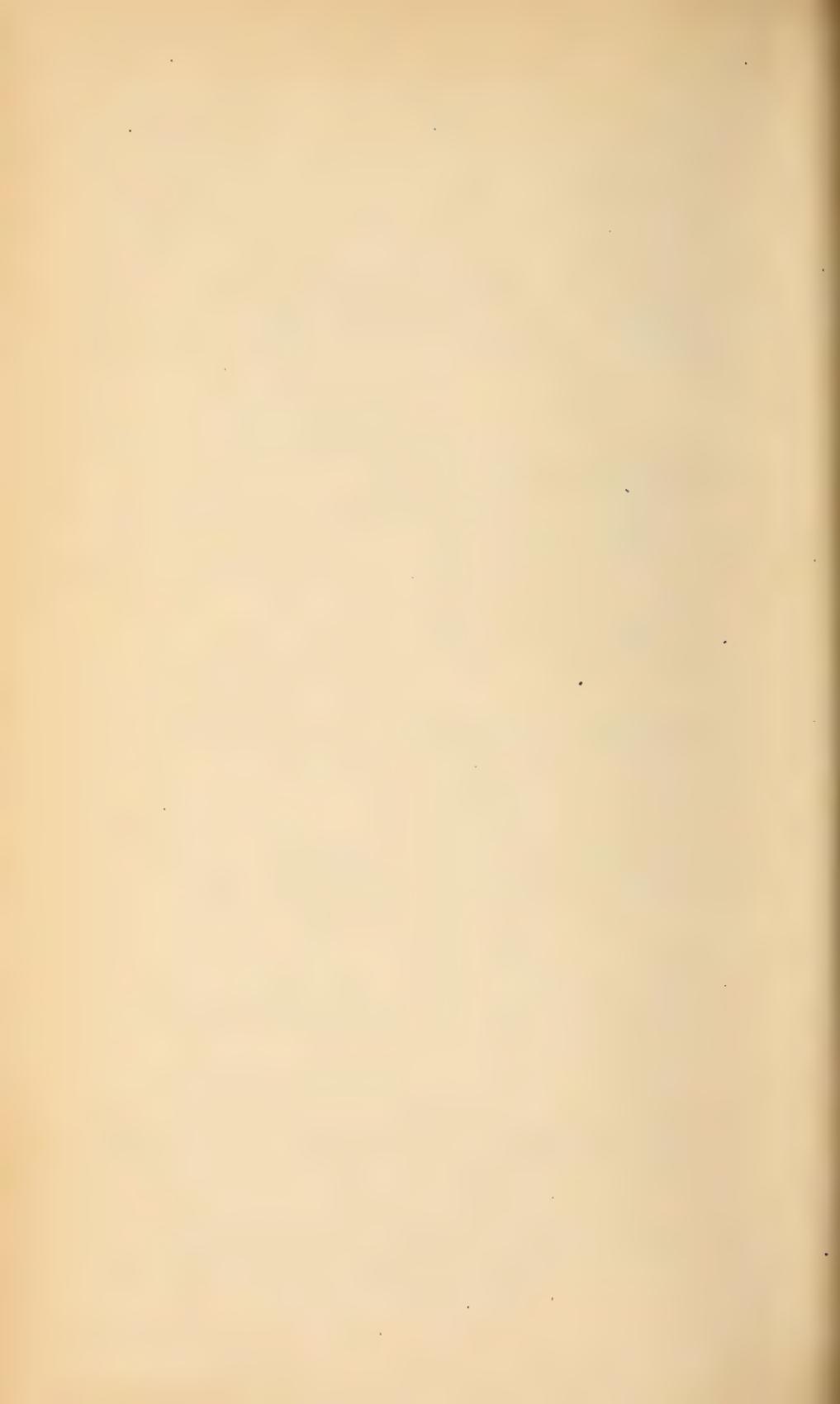
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